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AUTHOR	Williams, Patricia Walsh
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ABSTRACT

Examined with 59 inservice teachers was the ability to learn to identify and manage children with learning difficulties through participation in a training program using the module "A Decision-Making Model for Teaching the Handicapped", the transfer of knowledge obtained from the training program to the teacher's classroom behavior, and the extent of inservice support needed for maximal comprehension and implementation of the model. Groups of Ss viewed the module only, received a weekly self-monitoring checklist in addition to the module, interacted with a consultant in addition to reviewing the module, or viewed another module. Comprehension and implementation were evaluated, and analysis of the data indicated that Ss viewing the module evidenced significantly greater comprehension and implementation of the decision-making process than controls, and both forms of followup increased the levels of comprehension and implementation significantly, with no differences between the types of followup used. (Approximately half of the document consists of such appended materials as a flow chart of the decision-making model, the self-monitoring weekly checklist, summary of consultant activities, interpretation of measurement data, and statistical tables.) (IM)

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A COMPARISON OF INSERVICE METHODS FOR TRAINING TEACHERS TO COMPREHEND AND IMPLEMENT THE DECISION-MAKING MODEL OF DIAGNOSTIC TEACHING[1]

Patricia Walsh Williams

January, 1976

Final Report 9.32

Center for Innovation in Teaching the Handicapped

Indiana University

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FOREWARD

The Tips for Teachers Project at the Center for Innovation in Teaching the Handicapped (CITH) is directed toward the development of a series of self-contained, self-instructional modules for training teachers of handicapped children.

The purpose of the present project was to demonstrate whether teachers can learn to identify and manage children with learning difficulties through participation in the module "A Decision-Making Model for Teaching the Handicapped." A second purpose was to determine whether the knowledge obtained from the module transferred to the teacher's classroom behavior. Finally, the project examined the extent of inservice support needed for maximal comprehension and implementation.

Fifty-nine inservice teachers were randomly assigned to one of four groups, each group representing a specific inservice format. There were three experimental groups: Teachers in one group viewed the module on decision-making alone. Teachers in a second group viewed the module on decision-making and received a weekly self-monitoring checklist for six weeks. Teachers in a third group viewed the module on decision-making and interacted with a consultant for six weeks. A control group of teachers viewed another module in the Tips for Teachers series, "Personalized Questions." Seven weeks after the modular presentations, two dependent measures were administered to the teachers. Comprehension was evaluated through answers to questions about a simulated case study. Implementation was evaluated through an interview schedule.

The analysis of the data indicated that teachers who viewed the module on decision-making evidenced significantly greater comprehension and implementation of the decision-making process than control teachers ($p < .001$). The level of comprehension and implementation was significantly increased if the teachers received some form of follow-up to the module ($p < .001$). The type of follow-up (a checklist or a consultant) did not significantly influence the level of comprehension or implementation.

From these results, it was concluded that the decision-making module is effective in helping teachers to comprehend and implement the decision-making process. It was also suggested that teachers are more likely to implement decision-making strategies if they receive some follow-up support.

Melvyn I. Semmel, Director
Center for Innovation in
Teaching the Handicapped

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CHAPTER I

INTRODUCTION

In the field of education today, increasing emphasis is being placed on the needs and demands of all children, not just those who do well in traditional school settings. The recently initiated right-to-education movement in the United States has increased the number of situations in which public school teachers must attend to the educational needs of exceptional children (Weintraub & Abeson, 1974). Recent court decisions have encouraged this commitment by mandating re-evaluation of placement and exclusion decisions on the part of the educational personnel.

The decision rendered in a suit brought by the Pennsylvania Association of Retarded Children (Abeson, 1973) in federal court made it mandatory that free public school education be provided for mentally retarded persons. The implications of this right-to-education ruling were expanded by the *Mills vs. Board of Education of the District of Columbia* case. This latter decision provided that all handicapped children, not just the mentally retarded, have an equal right to education. The *Mills* case is considered a final and irrevocable determination of plaintiff's constitutional rights (Abeson, 1973). The Pennsylvania decision had been based on a consent agreement and did not provide the legal precedent of the *Mills* judgment. The spirit of the Mills decision has been included in guidelines issued by many state legislatures for the protection of all children's equal right to education.

The impact of such litigation has been to underline five important concerns for parents and children. First, intelligence tests standardized on white, middle-class students do not accurately measure the learning ability of many children. Second, the tests are often administered incompetently and under conditions that are not conducive to the expression of an individual child's abilities. Third, parents need to be fully informed about and involved in the placement process. Fourth, special education programming is inadequate and has not shown itself to be a significant environment for developing children's potential. Finally, placement in a special class is seen as injurious to the child's self-concept, and to the way in which s/he is viewed by peers and teachers (Cohen & DeYoung, 1973).

As decisions regarding changes in special class placement continue to be reached through the courts, educators are being forced to be more concerned that test results are used correctly and that programming specifically meets the needs of all children. The impact of these court initiated changes on the educational system necessitates a very real change in the educational orientation of most school personnel. Administrators and teachers have traditionally structured the school curriculum on the broad middle-range-of-ability students. Major concern has been to impart prescribed information and material to as many students as can comprehend the instruction. This general orientation does not give major consideration in curriculum planning to individual student needs and instructional strategies. Court decisions on mainstreaming are demanding that all educators, not just special educators, begin to refocus their planning to include these concerns.

Discussions of changes and trends in special education (Abeson, 1974; Deno, 1972; Mann, 1975) repeatedly emphasize increased involvement of the regular classroom teacher in the identification and management of exceptional children. The problem for education is not whether to have special classes, but what special education can do, working in concert with regular education, to provide the best environment for individual children. Some children may need a self-contained environment; some may need to be returned to the very classrooms from which they were excluded. The regular classroom teacher is becoming recognized as a primary contributor to and interpreter of assessment results and as an evaluator of instructional programming for mildly handicapped children. Teachers observe more of a student's learning behavior than anyone else, and it is therefore reasonable that the teacher be a relevant contributing member of the evaluation process.

Given the five major concerns expressed in litigation procedures, identifying and managing exceptional children in the regular classroom requires that the educational team, including the classroom teacher, begins to understand children from a different viewpoint. Traditionally, every classroom in a school is geared toward learning one specific set of grade level materials. For example, everyone in the third grade in a school district is expected to learn the same set of multiplication facts and to read the same textbooks. This orientation toward the expected outcomes of attending the third grade in such a school district is based on the belief that the students involved are fairly homogeneous in their ability to learn the curriculum. There is some allowance for variation in learning rate, such as when teachers have three reading groups. The presence of exceptional children in a classroom will disrupt this notion of homogeneity and will, therefore, disrupt the traditional learning environment. One set of grade level materials will be insufficient to motivate and educate the variety of children found in any one grade. Instead of relying on standardized test results to help group children, teachers will have to observe behavior in a variety of settings. Such observation must focus on specific learning abilities, skills, and behaviors, and take into account the interactive nature of behavior. Teachers must be able to objectify and qualify their observations so that helpful data can be available for program development. Standardized tests were constructed in order to gain information about the traditional group of students. The characteristics of that group of students are changing, and the ability of standardized tests to reflect those changes is limited. Now, with an increase in the variation of learning styles present in a classroom, teachers will have to find other ways to gain information about students and other ways to use the information obtained.

This change in teaching strategies serves to highlight the lack of preparation that most teachers exhibit for understanding and educating exceptional children. Most analyses of the self-perceived needs of teachers show an intensive interest and need for additional training in such areas as techniques for diagnosing student learning problems, individualizing instructional strategies, and providing for the children in the regular classroom (New England Program in Teacher Education, 1974; Rutherford & Weaver, 1974; Smith, Otto, & Harty, 1970). With the continued impact of mainstreaming, these needs are becoming much more intensified. Although schools of education have taught teachers to transmit curriculum material, they have not, traditionally, been shown how to understand students and students' learning styles and needs.

Typical psychoeducational evaluation has contributed little toward solving the educational problems of children. Often, the school psychologist diagnoses a child's problems but fails to translate that diagnosis into a sound educational program for the child. The psychologist's use of standardized instruments and neglect of task and situational conditions (Keogh, 1972) leave the teacher without recommendations that can be implemented in the classroom.

In summary, the classroom teacher can be described as a victim of the mainstreaming movement: the teacher is faced with handling a broader range of handicapped children than ever before and is expected to participate meaningfully in the evaluation of these children, even though the regular teacher is admittedly untrained to deal with either task. Further, consultation by psychological services gives little promise of helping the teacher contend with the diversity of educational backgrounds and learning characteristics which mainstreamed students represent. It is, therefore, necessary to provide the regular classroom teacher with support in the development of the skills necessary for the identification, evaluation, and management of these children. It is incumbent upon special education to devise and implement ways through which this support can be accomplished.

Inservice Programs

Many state and local educational agencies in cooperation with local universities have initiated the development of programs to provide teachers with necessary support. These projects usually provide two means of support for the classroom teacher: a resource staff to provide consultation, remediation, and evaluation assistance and/or an intensive inservice training program to acquaint teachers with the necessary skills.

In the state of Maryland, educational agencies are encouraged to have both resource personnel that can diagnose and prescribe remediation strategies and itinerant specialists for tutoring and counseling students. Agencies are also encouraged to utilize the Maryland Training and Development Center and a new instructional television series produced in Maryland designed to acquaint teachers with appropriate skills. The inservice training consists of formal course work with credit granted from George Washington University and periodic meetings held in each particular school. Teachers are trained in observational skills, instructional techniques, and evaluation strategies (Mopsik & Hession, 1975).

Other state and local involvement has been very similar to that in Maryland. The Houston, Texas, plan includes the construction of a Teacher Development Center for retraining teachers to individualize the instructional process through simulation, observation, and immediate feedback (Meisgeier, 1975). Houston schools have also introduced two new roles into the educational mainstream: the diagnostic-precision teacher and the learning facilitator. Other programs in such diverse settings as Portland, Oregon (Frankel, 1975), Salt Lake City, Utah (Buffmire, 1973), Minneapolis, Minnesota (Johnson & Grismer, 1973), and Vermont (Fox, Egner, Paolucci, Perelman, Garvin, & McKenzie, 1973) focus on the development of inservice training orientated toward understanding the specific needs of individual children and evaluating programming suggestions. Major components of these programs include such tasks as learning to specify instructional objectives, measuring behavior, individualizing programs, and continually evaluating the impact of suggested programs. Each project reflects the felt need of teachers to be better able to gain relevant information about a variety of students and to use that information appropriately. Many universities around the country are beginning to reflect this need in the type of master's level programs being offered. A teacher can now become a "clinical" teacher (Mann & Suiter, 1974), a "diagnostic-prescriptive" teacher (Prouty & Prillaman, 1970) and a "methods and materials consultant" teacher (Van Etten & Adamson, 1973). The pattern of inservice training being initiated reflects a change in orientation and direction. Teachers are learning how to understand individual children's needs and manipulate curriculum to fit those needs, a direct change from the previous emphasis on making the student understand curriculum materials.

Statement of the Problem

State and local educational agencies around the country are currently attempting to implement the mandates handed down by various court rulings concerning the right of all children to a public school education. Many plans have been initiated with the general goal of successfully maintaining exceptional children in the mainstream of regular education. It has become clear that the regular classroom teacher's lack of skills for handling the handicapped child suggests a need for special education support in accommodating the teacher's needs for retraining and the student's needs for individual attention.

The most widely adopted strategy for helping teachers involves the development of innovative inservice education programs with the assistance of federal and state educational input. Recent innovations in the area have focused on: (1) the perceived needs of teachers, (2) in situ programming, and (3) feedback and follow-up support of the training. All major inservice programs, such as those in Houston, Portland, and Seattle (Haring, 1973), are based on an assessment of teachers that indicated a need for classroom teachers to become more self-sufficient in their understanding of children. Every program also includes the notion that, since change takes place in the classroom, training should also take place in the classroom. Consulting teachers in Vermont (Fox et al., 1973) go directly to the classroom and give information to the teacher while helping him/her better understand the children in that classroom. Furthermore, each of the innovative programs allows for some form of follow-up support for all the teachers who are trying new skills. Consultants are the primary support, particularly in the Salt Lake City program (Buffmire, 1973) and the Maryland - George Washington University program (Prouty & McGarry, 1973). Borg (1972) has found the minicourse structure to work equally as well. In this case, follow-up occurs in the form of feedback through videotape and observation ratings by the teacher on the teacher's own performance.

Another emphasis in teacher education has been the development of self-instructional packages (or modules) than can be disseminated to a wide variety of learners (Thiagarajan, Semmel, & Semmel, 1974). Self-instructional packages have the potential for fully acquainting a teacher with a desired skill and the knowledge necessary to implement the skill. Since the objectives that must be met are clearly outlined in the package, there is potential for a teacher to learn a new technique unassisted by resource personnel.

The most widely publicized model of teacher-pupil interaction being used in inservice programs involves the use of informal assessment and evaluation procedures with the support of resource personnel. The terms used for this approach vary, but it is most often labeled clinical teaching or diagnostic teaching. Resource personnel are given characteristically appropriate titles (e.g., diagnostic-precision teacher). Diagnostic teaching as it is being presented in the various mainstreaming programs around the country involves continual decision-making on the part of teachers. The teacher needs to make decisions about: (1) the needs of students, (2) the instructional objectives stemming from those needs, (3) the techniques and materials to achieve the objectives, (4) the ways of observing the effectiveness of teaching and learning, and (5) a willingness to adjust according to the information that is collected (Deno, 1973).

The emphasis upon testing by experts, such as school psychologists and reading specialists, and the resultant lack of teacher involvement in the testing process has shifted to an emphasis on informal assessment Since the ultimate responsibility for instructional decisions rests with the teacher, educational programming has begun to include the teacher in the development of instructional prescriptions, in evaluation, and in remediation centered in the child's own classroom. In programs around the country, requirements for the teacher to undertake the diagnostic teaching process generally include three points. First, the teacher must look at children primarily in terms of academic strengths and weaknesses, rather than in terms of etiology or diagnostic labels. Second, the teacher must become a systematic observer of behavior and be able to understand and analyze task performance closely. Third, the teacher must be flexible enough to engage in trial teaching which involves "systematic modification of methods and materials in response to the child's reactions to them in the actual instructional situation" (Moran, 1975).

The diagnostic teaching model represents a change in orientation for most teachers. Teachers have not traditionally engaged in the kinds of behavior which are now being taught to them at inservice programs from Oregon to Vermont. All of the inservice programs emphatically support the diagnostic teaching model as one major solution to the teaching of exceptional children in regular classrooms. Presently, there is no evidence to show that the educational agencies have evaluated the facility with which teachers adopt this approach, much less whether the approach in fact enhances a child's learning environment. Furthermore, the agencies have not examined how best to impart the information in order to encourage learning and behavior change on the part of teachers.

The problem for investigation in this study is whether teachers are able to understand the basic components and orientation of diagnostic teaching and, further, whether the ability to understand the process is translated into a change in teacher behavior in the classroom. There is a need for educational planners to evaluate the impact of this particular educational orientation on classroom teachers. This is especially important because a great number of school districts are assuming that inservice programs on this teaching strategy are going to greatly facilitate the mainstreaming of exceptional children.

A module has been developed by Indiana University's Center for Innovation in Teaching the Handicapped which outlines the Decision-Making Model (Gillespie & Sitko, 1974) of diagnostic teaching. This self-instructional module is a transportable package of materials (an audiotape, slides, and a response book) which attempts to acquaint teachers with the notion of diagnostic teaching by giving examples from the day-to-day experiences of classroom teachers. When a teacher finishes the module, s/he is presumably proficient in the process of diagnostic teaching. The specific objectives for the Decision-Making Module are to:

(1) Identify types of data that are relevant.

(2) Analyze and synthesize data.

(3) Establish hypotheses based on available data.

(4) Test hypotheses and evaluate results.

(5) Evaluate effectiveness of teaching.

The Decision-Making Model consists of a sequence of procedures to follow to become more knowledgeable about any particular child's learning difficulties. (See Appendix A for a flow chart of the model.) The teacher is shown how to gather data, generate hypotheses about the data, and test out hypotheses with a teaching lesson. The Gillespie and Sitko model has been developed as an on-going teaching strategy which allows for continual interaction between teachers and students (see Figure 1). The model incorporates all of the major components currently included in the inservice education program being conducted around the country.

Purpose of the Study

The purpose of this study was to utilize the module on decision-making developed at the Center for Innovation in Teaching the Handicapped in an investigation of teachers' understanding and implementation of diagnostic teaching. The investigation was conducted in different inservice settings to clarify the type of intervention needed for understanding and implementation to occur. Given the variety of inservice programs, there is a need to examine the extent to which an educational system should be involved in training. In Houston, Texas, the training is extensive and involves the construction of a teacher center and the implementation of a vast support system. In smaller communities, self-instructional modules may comprise the entire inservice training. Obviously, there is a need to evaluate whether an elaborate system is necessary for adequate training.

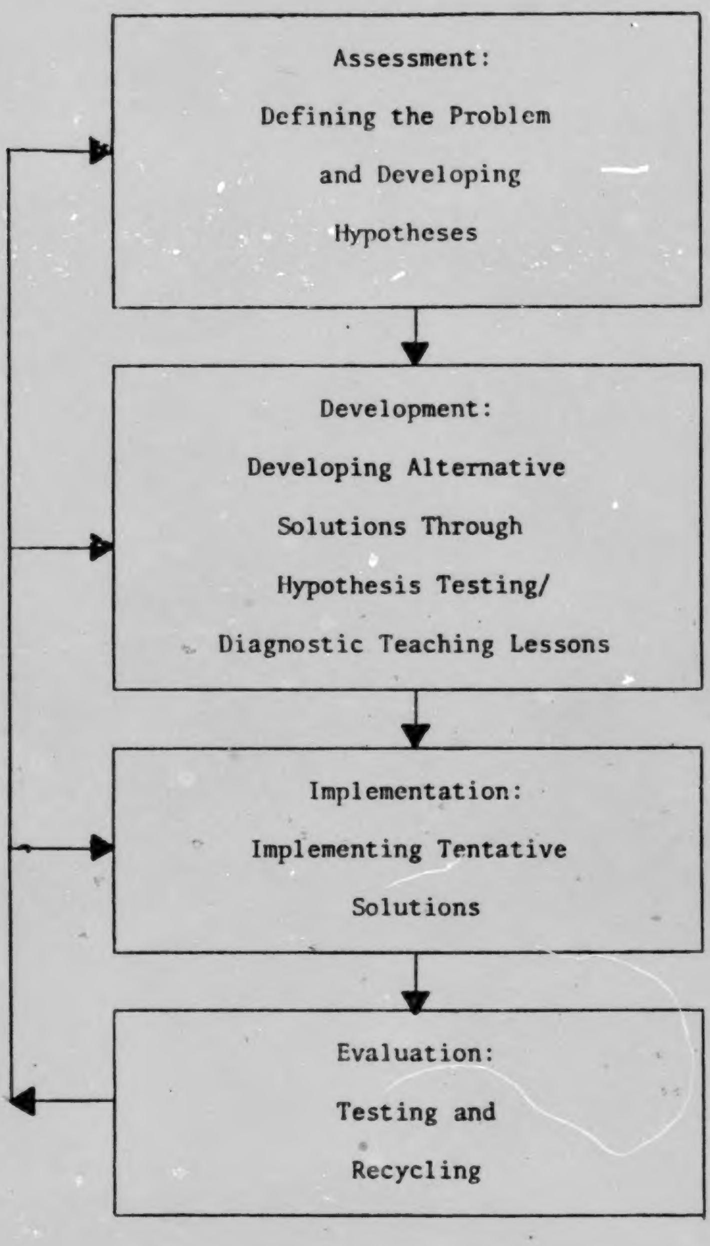
Assessment:
Defining the Problem
and Developing
Hypotheses
Development:
Developing Alternative
Solutions Through
Hypothesis Testing/
Diagnostic Teaching Lessons
Implementation:
Implementing Tentative
Solutions
Evaluation:
Testing and
Recycling

Figure 1. Major stages of the Decision-Making Model

A primary purpose of this study was to determine whether or not teachers can learn how to identify and manage children with learning difficulties through participation in a module designed to acquaint teachers with diagnostic teaching. A second major purpose was to determine whether or not the knowledge obtained in the modular presentation transferred to teacher's classroom behavior. The final purpose of the study was to examine the extent of inservice support needed for maximal comprehension and implementation.

More specifically, this study was concerned with answering the following questions:

(1) Do teachers understand the decision-making process after presentation of the module?

(2) Are teachers able to implement the decision-making process after presentation of the module?

(3) Does a follow-up procedure increase the understanding and encourage implementation of the decision-making process?

(4) Is the communication of ideas through consultation with teachers a more effective follow-up procedure than the teachers' monitoring their own behavior through the use of a checklist?

(5) Are some components of the decision-making model more readily adopted by teachers?

  (a) Are teachers able to keep records and profiles on children?

  (b) Are teachers able to do informal observations in their own classrooms?

(c) Can teachers develop hypotheses about learning problems and put these hypotheses in terms of instructional needs?

(d) Do the teachers use diagnostic-teaching lessons?

(e) Can teachers utilize task analysis and learner analysis?

(f) Are teachers able to monitor both child's performance and their own teaching behavior?

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

The preceding chapter presented the rationale for this investigation. The present chapter focuses on a review of selected research in the following areas: (a) diagnostic-prescriptive teaching, (b) inservice education, and (c) planned change in education.

Diagnostic-Prescriptive Teaching

In the past, the focus of diagnostic-prescriptive teaching approaches has been the matching of test findings to specific instructional strategies (Bannatyne, 1968; Bateman, 1966; Frostig, 1965; Kephart, 1971; Kirk & Kirk, 1971; McCarthy, 1972). In these approaches, the primary assumption is that specific psychological processes are necessary for successful achievement in elementary schools. If a child is not reading well, a clinician needs to "diagnose" the cause of the problem, which is usually traced to one or more specific psychological processes. Once a diagnosis has been made that indicates such weaknesses as "auditory sequential memory deficits," "visual figure-ground" distortion, and/or "grammatic closure" difficulties, the remedial strategy can be prescribed. This prescription revolves around remediation of deficit areas.

Ysseldyke and Salvia (1974, p. 181) outline four critical assumptions of diagnostic teaching:

(1) Children enter a teaching situation with strengths and weaknesses.

(2) These strengths and weaknesses are causally related to the *acquisition of academic skills.*

(3) These strengths and weaknesses can be reliably and validly assessed.

(4) There are well-identified links between children's strengths and weaknesses and the relative effectiveness of instruction.

Advocates of the remediation of psychological process deficits have failed to provide evidence to verify these assumptions.

The typical diagnostic procedure followed under this early diagnostic-prescriptive teaching approach included testing a child's performance on two widely used tests: the Developmental Test of Visual Perception (Frostig, 1964) and the Illinois Test of Psycholinguistic Abilities (Kirk, McCarthy, & Kirk, 1968). Both tests are divided into sub-tests that theoretically analyze specific psychological process areas. On the Frostig test, there are five subtests: eye-hand coordination, figure-ground perception, form constancy, position in space, and spatial relationships. Each subtest is meant to measure a child's visual perception abilities. Frostig states that these five visual perception abilities are "critical for the acquisition of school learning" (Frostig, Lefever, & Whittlesey, 1964, p. 384). When a child is found to have difficulty with certain sub-tests, specific remediation strategies are prescribed. The Frostig-Horne (1964) perceptual-developmental program is composed of 359 worksheets divided into sets corresponding to the sub-tests of the Frostig tests.

A selective review of research investigations using both the Frostig test and remediation program indicates that little evidence exists for the validity and reliability of the instrument (Ysseldyke and Salvia's assumption #3), for the belief that the acquisition of these abilities will enhance academic performance (assumption #2), and for the notion that exceptional performance on a test of visual perception indicates the need for a "visual" instructional approach to reading (assumption #4).

The test-retest reliabilities reported by Frostig, Lefever, and Whittlesey (1964) range from .29 for the eye-hand coordination subtest to .80 for form constancy. A total score reliability coefficient of .69 was reported with kindergarteners and first graders. In order to utilize differential diagnosis on the basis of a standardized test, there is a need for fairly high reliability (Cronbach, 1970). The capacity of the Frostig test to accomplish the purpose for which it was developed, i.e., the identification of visual-perception deficits, can be seriously questioned due to its relatively low reliability.

Factor analysis of the Frostig test has failed to yield five separate perceptual factors (Hammill & Larsen, 1974). Once again, Frostig's hypothesis that the sub-tests tap distinct visual-motor qualities, and thereby possess diagnostic value, is not substantiated.

The research indicates that the Frostig training program in perception has no effect on reading and has a questionable effect on school readiness and on perception. Fortenberry (1968), Jacobs (1968), Lewis (1968), and Wiederholt and Hammill (1971) studied the effects of the Frostig program on reading. Though these investigations varied on number of subjects, trainers, and types of students, all authors concluded that an improvement in reading cannot be expected as a result of systematic use of the program. Furthermore, Alley (1968) and Alley, Snider, Spencer, and Angell (1968) reported no statistical difference between trained and nontrained subjects on visual-perception growth.

Bruininks (1967) and Sabatino, Ysseldyke, and Woolston (1973) conducted investigations to ascertain the extent to which teaching to a perceptual strength would aid in reading ability. Bruininks' analysis of results indicated a nonsignificant interaction between perceptual strength and instructional method. No significant gains in achievement were reported by Sabatino et al.

Results of research using the Illinois Test of Psycholinguistic Abilities demonstrate similar inconsistencies and difficulties. The traditional diagnostic-prescriptive approach to teaching has not proven to be a reliable, credible method of helping children. The basic assumptions underlying diagnostic teaching are not met due to the many problems inherent in the measurement devices and the remedial programs themselves.

Recently, new models of diagnostic teaching have been developed. The better known models include the efforts of Cartwright and Cartwright (1972), Prouty and Prillaman (1970), Lerner (1971), Mann and Suiter (1974), and Smith (1974). These models focus on within-class, intra-individual, situation-specific evaluation and remediation strategies for understanding children with learning problems. The focus is on observable behavior and interpretation of strengths and weaknesses based on an understanding of task analysis, learner analysis, and environmentally specific considerations.

Ysseldyke and Salvia (1974) outline the ability of a task-analytic, diagnostic-teaching approach to meet the four critical assumptions of diagnostic teaching. This approach focuses on "skill development, skill assessment and prescription of instruction based upon a child's standing in the hierarchical sequence of academic skill development" (p. 184). This approach, while meeting the assumptions of diagnostic-prescriptive teaching in general, does not relate to the motivational aspects of teaching any child with learning difficulties. A knowledge of where a child fits on a hierarchical sequence does not insure that the child will acquire the missing skills. Some learner analysis is necessary to appreciate the types of instruction that will appeal to the child and create an interest in acquiring the needed skill.

The most widely known models of diagnostic teaching, as well as any discussions of this approach (Burnett, 1970; Reynolds & Davis, 1973), include both task analysis and learner analysis in the format. The type of decision making required in all the models can be generalized to five basic steps:

(1) Defining the problem which includes collecting and analyzing data.

(2) Developing hypotheses concerning the nature of the problem and ways to remediate.

(3) Testing the hypotheses which often includes a diagnostic teaching lesson.

(4) Implementing the specific program indicated by the diagnostic teaching lesson.

(5) Evaluating appropriateness of the instructional program which may necessitate redefining the problem.

This type of decision-making involves consistently observing a child's performance in a given number of areas over a period of time and making some educated guesses (hypotheses) concerning the nature of his/her problem and how one might best construct the environment to help alter the manner in which s/he deals with the problem. Such activity will, it is hoped, affect his/her performance level. In this orientation, diagnostic-prescriptive teaching pulls away from the detailed and highly specialized clinical analyses implied in the more traditional approaches and focuses on the day-to-day decisions that have to be made for each student to progress academically as well as socially.

There is little evidence to support the use of these newer models of diagnostic teaching (Morrissey & Semmel, 1975). The evidence that exists merely indicates what has not worked. Every diagnostic model emphasizes the importance of continual informal evaluation of a child's performance. The teacher learns to set objectives, to observe behavior, to measure performance based on specific criteria, and to be aware of the range of instructional procedures available to manage the educational problems of children.

Bond (1970), after analyzing the First Grade Reading Studies and the Second Year Follow-Up, suggests that the differences in pupils' success, aside from those related to their own ability, are due to differences in the overall learning situation fostered by the school system and, even more, by the specific teaching techniques used by teachers rather than the general method. He defines these specific techniques under the broad heading of diagnostic teaching. The most successful teachers are rated as having well-organized classes, encouraging considerable class participation, analyzing with exceptional skill the reading growth of each child to locate his/her instructional needs, and making provisions for a variety of curricula materials to correct problems. The underlying element in each is the extent of service the teacher gives to each child at the time s/he needs help.

The diagnostic teaching model developed by Gillespie and Sitko (1974) is an attempt to bring together the major components of this decision-making process (see Appendix A for a flow chart of the model). Each step in the Gillespie-Sitko model is described and given practical application in the Decision-Making Model for Teaching the Handicapped module. The objectives listed in many state and local educational inservice programs for regular classroom teachers are touched upon through the diagnostic teaching model described by Gillespie and Sitko. The assumption can be made that the various components described in the model are in accord with the expectations of many proponents of mainstreaming who feel that the regular classroom teacher needs to be better equipped to identify and manage exceptional children.

Inservice Education

Designing and conducting training activities for teachers who are working in the classroom have in recent years become widespread and complex tasks. Inservice training of teachers is available in many formats and contexts, including: regularly scheduled university courses conducted in the afternoons or evenings to fit the work schedules of classroom teachers; summer institutes of one to ten weeks duration; short-term workshops held on curriculum or inservice days during the school year; after school special programs of one to several days duration (Rubin, 1974). Regardless of the topic covered, the general goal of inservice training is to provide teachers with additional capabilities beyond those received in preservice training that will result in their increased effectiveness in the classroom.

A survey of the available literature published during the last decade on the inservice education of teachers revealed two major areas of criticism. First, there has been a lack of relevancy of inservice training for the perceived needs of teachers. Second, there has been little evidence of within classroom behavior change on the part of teachers after inservice training.

Relevancy of inservice education. Specific inservice education objectives have been largely irrelevant to the priority needs of teachers and students. Cruiscuolo (1973) evaluated five "effective" inservice reading programs and concluded that the reason for their effectiveness was the presence of clearly defined goals based on teacher needs. Lippitt and Fox (1967) directed a major project designed to study the improvement of educational practice in the classrooms. Using 532 teachers at all levels of the public schools, the authors found that it is critical to the chances of utilization of new insights and skills for teachers to be involved in the identification and articulation of their own training needs.

An evaluation of a number of previous National Defense Education Act institutes (Project Impact, 1970) was conducted by the American Institute for Research. While teachers generally had approved of their institute training experience, they evidenced minimal carry-over to the classroom. As a follow-up of this finding, Girault and Gross (1973) changed their approach when developing a summer institute on social studies teaching. They recruited teams of teachers and administrators from the same school district. They insisted on district support of these personnel, and they allowed the educators to develop their own program based on their perceived needs. Girault and Gross (1973) report that this type of institute has proven very successful in generating change in selected school districts.

The advisory approach to inservice education (Katz, Morpurgo, Asper, & Wolf, 1974) has proven successful by meeting the needs of teachers on a one-to-one basis. The advisors (consultants) allowed teachers to request their services and to stipulate what was needed. As the advisor interacted with a teacher, either person felt comfortable suggesting avenues of change.

Two common complaints educators have against inservice training programs are: (1) the little consideration given to actual or felt needs of the educators involved and (2) the little opportunity for participants to make suggestions in program planning (Allen, 1971). Developing an effective inservice program, then, will necessitate identifying the preferences of the teachers involved.

In a study designed to identify preferences of elementary teachers for certain instructional patterns and procedures, 488 teachers indicated three areas of greatest need: (1) diagnosing individual instructional needs, (2) providing for the "disabled" reader in the classroom, and (3) utilizing different methods with children who have educational problems (Rutherford & Weaver, 1974). These findings paralleled those of Smith, Otto, and Harty (1970), who questioned 225 teachers in Wisconsin.

The New England Program in Teacher Education (1974) sent needs assessment questionnaires to teachers in all five New England states. Responses to the questionnaires revealed that 2 out of 25 designated areas received the largest percentage of responses from teachers wanting either intensive and/or considerable additional training. These two areas and the response percentages for each are listed by state in Table 1.

In summary, it is clear that the needs and preferences of teachers are the primary source for content and orientations of inservice education. Furthermore, it is evident that teachers have a strong need and desire for the skills and techniques that will enable them to help children with educational problems.

Table 1

Needs Assessment Percentages for the Two Areas of Greatest Interest to New England Teachers

Area	State A	State B	State C	State D	State E
Individualized instruction strategies	.51	.50	.42	.46	.49
Techniques for diagnosing student reading problems	.46	.48	.53	.49	.52

Note. From "Teacher needs assessment project" by the New England Program in Teacher Education (NEPTE), Durham, New Hampshire, NEPTE Staff Working Paper 1, 1974.

Efficacy of inservice education. Most studies on inservice education can show a knowledge gain for teachers after the inservice but are unable to indicate change in teacher behavior within the classroom.

Numerous doctoral dissertations on inservice training have reported significant results on tests of content but not on long-term behavior change. McCarn (1969) looked at the effectiveness of workshop training in family life education and found that his teachers and aides were more aware of problems and methods upon completion of training, but this increased awareness was not reflected in classroom changes. In an evaluation of a short-term summer institute on learning disabilities, Scharles (1971) obtained similar results. Overline (1972) ran a four-day inservice program on learning disabilities with teachers during the school year in which he outlined instructional treatments, how to individualize, how to group more "meaningfully," and how to use media for educational results. Four weeks after the workshop, the experimental teachers' attitudes were higher than controls, but their overall behavior in class had not significantly changed.

Those dissertations where significant results were obtained have one very common ingredient: A major component of the inservice program was some sort of follow-up of teachers and ideas within the classroom. James (1969) concludes that continual inservice is effective in improving junior high school teachers' sensitivities, understanding abilities, and attitudes in providing for students' individual differences in reading abilities. In this case, the inservice format involved weekly readings, bi-weekly teacher evaluations of their own performance, and bi-weekly visits by a reading consultant. In a study by Grenner (1973), all five teachers who received classroom assistance from personnel trained in a classroom management system achieved the goals of the program and were still utilizing at least one component of the system six months after the training terminated. Grenner concluded from these results that assisting teachers in the classroom is more effective than seminar training alone.

There are some indications, then, that brief, one-shot, inservice programs do not have the impact necessary actually to change the within classroom behavior of teachers. An important additive to any inservice is a system of continual, ongoing interactions between teachers and trained personnel. Meyen's work in Iowa (1968) supported this conclusion with a successful statewide program of inservice training that utilized consultant teachers who visited districts and interacted with teachers concerning the teachers' expressed concerns.

All surveys on teacher preferences indicate that teachers want to be given an opportunity to practice under the guidance of a consultant and want to be provided with follow-up assistance in their classrooms. Teachers in the Rutherford and Weaver study (1974) rank ordered their preferences for the ways in which inservice education could be presented. Live demonstrations, especially if done with children in a typical classroom setting, were the single most popular choice among teachers at all experience levels and grade levels. As Lippitt and Fox (1967) suggest, inservice education activities should be carried on within the setting in which the learners normally work together. Within this setting, many varied activities can be utilized, including consultation, demonstration, and provision of curriculum materials.

Bjork (1970) focused his dissertation on the question, "Does the consultant-teacher interaction facilitate curriculum implementation?". This study involved 24 randomly selected fifth-grade classes. The treatment effect for the experimental group consisted of intensive guidance and direction from a curriculum consultant prior to and during the teaching of a six-week science unit. Through the use of an observation checklist, Bjork found that teachers who were assisted, implemented the curriculum in their classrooms to a significantly higher degree than did teachers receiving no assistance. Such teachers tended to teach more behavioral objectives, had greater content coverage, utilized a greater variety of learning activities, and made greater use of resource materials.

Katz et al. (1974) approached the notion of inservice education through the use of advisors. These advisors interacted directly with teachers and helped the teachers on problems with which they needed assistance. An advisor was attached to only a few schools and was thus able to meet with teachers every week. This investigation delineated a number of advisory activities which teachers and advisors felt were significant:

(1) Locating, identifying, and preparing instructional materials to meet specific instructional needs;

(2) Assisting teachers with formulating plans for more effective room arrangements for learning centers and for interest centers;

(3) Providing moral support and being generally supportive; sharing with teachers the setbacks and difficulties the advisors experienced as teachers themselves;

(4) Alerting teachers to available resources to help them with instruction;

(5) Giving informative feedback from their observations of the classroom activity;

(6) Demonstrating (or modeling) methods and techniques of teaching;

(7) Helping teachers to think through alternative methods and approaches to teaching specific skills and content.

Falik and Sichel (1972) suggest that effective inservice involves regular follow-up, informal observation, and a sharing of concerns. Contacts with teachers began through curriculum workshops, followed by regularly scheduled visitations to the schools where the advisors participated in planning and trouble shooting.

Project Child (Dillon, Heath & Biggs, 1970) demonstrated that teachers with regular elementary education training could, with in-depth, inservice training, meet the needs of children with learning disabilities. The training on this project included three years of continual training sessions, consultant time spent with individual teachers, and the development of checklists for teachers to monitor their own behavior as well as the children's.

Shaw and Shaw (1972) and McKenzie, Egner, Knight, Perelman, Schneider and Garvin, (1970) have also developed the consulting teacher approach to inservice training. Using on-the-job training, the consulting teacher defines a behavior in observable and measurable terms; reliably measures, records, and graphs the target behaviors; makes educational decisions based on the measures; and consistently follows a program according to the principles of applied behavior analysis.

In summary, inservice education seems to change teacher behavior in the classroom when there is in situ programming and some form of follow-up and feedback mechanism. According to the literature and research on education, inservice education is likely to be of assistance to teachers and their students under certain conditions:

(1) When objectives and goals of inservice are closely related to the reality of the classroom.

(2) When the teacher is an "active" participant in the program, be it at the developmental stage or in the actual format. Passive learners reflect less subsequent behavior change.

(3) When skills and information presented are those which teachers can use immediately in their classrooms.

(4) When there is an ongoing, continual program which incorporates the notions of consultants, feedback, practice, and time.

Planned Change in Education

It has been argued (Deno, 1973; Reynolds, 1973) that the mainstreaming effort throughout education will, of necessity, change the curriculum and instructional orientation of teachers and school administrators if it is to be successful. This change will be precipitated by the introduction of other innovations similar to the diagnostic teaching model. For this reason, it is relevant to explore the information on planned change in education that has accumulated over the past 15 years. The change process is derived from a clearly recognizable set of contingencies which has significant impact on the question of implementing innovations. Havelock (1971) summarized 2643 studies and found a "remarkable consistency..." (p. 111) which pinpoints seven themes of change. These themes include the notion that change requires: (a) a recognized need for change, (b) involvement on the part of adopters over implementation, (c) the trust and support of the change agent during the process, and (d) other built-in implementation supports.

Gross, Giacquinta, and Bernstein (1971) deliberately set out to examine the variables involved in adoption of an innovation. They introduced an entirely new instructional orientation to an inner-city elementary school. Their proposed instructional innovation was not adopted by the teachers during the initial year's program. The authors reached some interesting conclusions when attempting to understand why their innovation failed:

(1) Teachers lacked a clear understanding about the new role they were to play. They did not have a clear idea of the performances expected of them.

(2) Teachers lacked the skills and knowledge to carry out the new instructional package.

(3) Teachers lacked the required materials and equipment to implement the new program.

(4) The organizational arrangement of the school in the form of school schedules, assignment of teachers, etc., was incompatible with the innovation.

Sarason (1972) vividly describes the introduction of "new" math into the elementary schools. The lack of success in upgrading student mathematic ability could be directly related to the completely inadequate inservice training of teachers. Teachers did not perceive a need for change and were not closely involved in the implementation of change.

Rogers (1962), who has done much research on the diffusion of innovations, concludes that the absence of agents who promote change may be a factor in the relative slowness with which schools adopt innovation. Brickell (1961) interviewed educators in New York State concerning the needs of the educational system and found that there was a perceived need for change agents to demonstrate innovative programs and to assist the teacher.

After involvement in the successful introduction of curriculum changes in the junior high schools, Burns (1971) made several suggestions for encouraging adoption of innovations. He suggested that one work initially with a small, select staff of young, eager, interested persons. Next, it is important to select a problem that is generally recognized as needing change and, finally, to work at the change suggestions with the selected staff over a long period of time, reinforcing any initiative and giving feedback whenever necessary.

Innovations in organizations seem to depend on: (1) the use of change-agents--persons who explain the what, the how, and the why of proposed innovations; (2) the participation of organization members and the change agent in discussions and decision-making concerning the innovation; and (3) the development of some kind of strategy by organization members and the change agent for implementation of the innovation (Miles, 1964). Basically, the information on planned change in education presents the same orientation toward encouraging learning as the research on inservice education.

Summary

Diagnostic teaching has been shown to be an outgrowth of the criticism of traditional diagnostic-prescriptive teaching approaches and the present needs of education. Teachers are concerned about their ability to identify and manage handicapped children in the regular classroom. Diagnostic teaching models, generally, offer teachers a structured but informal approach to understanding children which is typically viewed as a necessary strategy for teachers of mainstreamed special education children. The module on decision-making, developed at the Center for Innovation in Teaching the Handicapped, presents a diagnostic teaching model that introduces teachers to the many components of the process. The major purpose of this study--to examine the ability of teachers to understand and implement the diagnostic teaching method--was investigated through the use of the module.

The criticisms of traditional inservice education, the research on inservice education, and the research in planned change in education has been taken into account when trying to determine the exact nature of each inservice method used in this study. In order to expect change in teacher behavior when working with exceptional children, inservice training programs must utilize certain procedures that seem to effect change. These procedures include making the training relevant to ongoing programs in the classroom and to the needs of teachers, encouraging active participation by teachers, and providing for continuous feedback and/or follow-up support to teachers. A model inservice education program designed to make a difference in the performance of teachers has been developed according to the sequence of events in Table 2.

During the development of the particular inservice methods examined in this study, each stage in the preceding model was taken into consideration:

Stage I. Surveys and teacher questionnaires indicate a need and a desire for training in how to better understand children with learning problems.

Stage II. The development of the decision-making module includes an outline of objectives and goals so that teachers can enter the inservice program fully aware of the outcomes and purposes.

Stage III. A consultant can be built into the design in order to examine the need for this particular input when working with self-instructional modules.

Stage IV. Module participation will be conducted in local schools and the examples used in all presentations are taken directly from classroom situations.

Table 2

The Stages of a Model Inservice Education Program

	Stages	Components
I.	Needs Assessment	Surveys, teacher questionnaires, discussions between administrators, teachers, and university personnel.
II.	Development	Planning programs, objectives stated, goals clear, teacher and administrator involvement.
III.	Change Agent	Can be supervisor or principal, consultant or advisor, from outside source.
IV.	*In situ* Programming	Microteaching, demonstrations, workshops in local school.
V.	Follow-up Support	Personalized assistance, self-monitoring with consultation, feedback, resource and curriculum allocation. Weekly/monthly meeting with administrators or change agents.
VI.	Evaluation	Monitoring of how objectives are being met; development of observation systems.

Stage V. Follow-up support can be conducted through the presence of a consultant as well as the use of a weekly checklist to encourage continual in situ consideration of the decision-making process.

Stage VI. Evaluation of teachers' understanding of the process and their implementation of the process occurs both as part of the inservice and as a measure of the study's efficacy.

The design of the study included the comparison of three inservice education formats: (1) the self-instructional module only; (2) the module with follow-up guidance from a self-monitoring weekly checklist; and (3) the module with follow-up support from a consultant. Each of the inservice formats represented some stage in the model program. An evaluation was then made of exactly how extensive the support system needed to be in order to detect change in teacher behavior.

The extensive evidence on effective inservice education and the successful adoption of innovations in education generated the following hypotheses for this study:

Hypothesis 1: Teachers participating in the module on decision-making will understand the decision-making process significantly better than teachers not participating in the module.

Hypothesis 2. Teachers participating in the module on decision-making and receiving follow-up support in the form of a consultant or checklist will understand the decision-making process better than teachers participating in the module alone.

Hypothesis 3. Teachers participating in the module and receiving weekly visits from a consultant will understand the process better than teachers participating in the module and receiving a weekly checklist of activities.

Hypothesis 4. Teachers participating in the module on decision-making will implement components of the decision-making process more often than teachers not participating in the module.

Hypothesis 5. Teachers participating in the module and receiving follow-up support will implement more components of the decision-making process than teachers participating in the module only.

Hypothesis 6. Teachers participating in the module and receiving weekly visits from a consultant will implement the process more than teachers participating in the module and receiving a weekly checklist of activities.

CHAPTER III

METHODOLOGY AND PROCEDURES

A primary purpose of this study was to demonstrate whether or not teachers can learn how to identify and manage children with learning difficulties through participation in a module designed to acquaint teachers with diagnostic teaching. A second major purpose was to determine whether or not the knowledge obtained in the modular presentation transferred to teacher's classroom behavior. The final purpose of the study was to examine under what inservice setting teachers comprehended and implemented diagnostic teaching most successfully. To investigate these questions, teachers were randomly placed in four groups and a different inservice format was used with each group. Teachers in one experimental group participated in the decision-making module only. Teachers in a second experimental group participated in the decision-making module and responded to a weekly checklist of decision-making activities for six weeks. Teachers in a third experimental group participated in the decision-making module and interacted with a consultant for six weeks. A control group was established which consisted of a group of teachers who viewed a module designed to acquaint teachers with group discussion strategies.

The evaluation of the teachers' comprehension and implementation of the decision-making process was conducted using two dependent measures. Comprehension of diagnostic teaching was examined through the responses of teachers to a simulated case study. Implementation of diagnostic teaching was examined through a structured interview of teachers. The groups' average scores on each dependent measure were contrasted through planned orthogonal comparisons.

Subjects

The procedures were designed to compare teachers' performance in specific inservice settings. All subjects were volunteers. Any teacher who volunteered to be a part of the study was randomly assigned to one of the four groups. Consequently, there were an unequal number of teachers in each group. Fifty-nine teachers volunteered for the study. Fourteen were randomly assigned to the decision-making module only group, 13 were randomly assigned to the module with checklist group, and 18 were randomly assigned to the module with consultant group. The remaining 14 teachers were randomly assigned to the control group.

Three school districts were contacted in order to receive permission to ask teachers to volunteer for the study. In each case, the administrators involved followed procedures set up by their own school district and agreed to allow investigator contact with the teachers. In each case, the common factor was an interest in participating on the part of the teachers. At no time was any teacher required to participate in the study. Each teacher was fully aware of the investigator's expectations and the maximum input necessary from teachers. Each teacher was randomly assigned to a group as s/he decided to be involved in the proceedings. Consequently, there was the possibility of having all four groups represented or only one of the four groups represented at any given school, depending on the outcome of the random assignment.

Treatments

Teachers in the three experimental groups participated in the module on decision-making. The module on decision-making was comprised of four parts: (1) a slide-tape walk-through of the decision-making model, (2) a case study for the teacher to work through, (3) an article written on diagnostic-prescriptive teaching, and (4) a list of references to aid in decision-making. All of these items were in a response booklet given to the teachers at the time of the slide-tape presentation. The case study in the response booklet included a series of very specific questions that were answered by all participants subsequent to the slide-tape presentation. This task provided the teachers with an opportunity to explore the decision-making process as a group after receiving a general overview of the process.

The control group viewed a module entitled Personalized Questions, which suggested the use of personalized questions as a technique for teaching groups of children. Using personalized questions helps bring out slower learning children during class discussions by focusing on the common experiences of children as they relate to factual information. This module consisted of a slide-tape presentation and a response booklet. In the response booklet, teachers eventually prepared a series of personalized questions for a given lesson and taught a five-minute lesson in a micro-teaching situation.

The experimental groups differed in the amount and type of follow-up received after viewing the module. Experimental group one (n = 14) viewed the module and responded to the two dependent measures seven weeks after the modular presentation. Experimental group two (n = 13) viewed the module and was given six weekly checklists to serve as a self-monitoring follow-up. These checklists consisted of a series of 28 statements (see Appendix B) that correspond to stages in the decision-making model and its various subcomponents. After six weeks, the checklist group also responded to the two dependent measures.

The third experimental group (n = 18) viewed the module and received a consultant as follow-up after viewing the module. The consultant discussed the module and the decision-making model with teachers, demonstrated techniques, outlined procedures, discussed problem children, and, with one teacher, gave feedback on the teacher's performance. The consultant did not bring any materials to teachers, nor did she supply references for the teacher to utilize. Identifying and retrieving materials for teachers was viewed as yet another treatment factor and was not considered appropriate for the purposes of this study. Appendix C contains a more detailed description of the consultant role and an overview of the interactions that occurred between teachers and the investigator.

In the seventh and eighth weeks subsequent to viewing the modules, the groups of teachers again met in their schools and answered the five questions pertaining to a simple case study of a third grade boy with educational problems (the comprehension measure). During the weeks following this session, each teacher was interviewed individually concerning his/her implementation of the strategies presented in the modules (the implementation measure).

Dependent Measures

One purpose of this study was to determine the ability of the module on decision-making to impart information and to ascertain whether teachers will implement the various components of the decision-making process in their classrooms. Three forms of inservice education were compared to see whether comprehension and implementation can be improved with follow-up support to teachers. Two separate items were developed to measure understanding and implementation.

Comprehension. Comprehension of the decision-making process was evaluated through the use of a simulation technique. Each teacher was given a seven-page description (see Appendix D) of a third-grade boy who was not learning as well in school as one might expect. The description consisted of sections from a cumulative record, teacher comments, special personnel recommendations, and teacher observations. The teachers were instructed to read through the description and then answer five questions relating to the case study.

There are four major stages in the decision-making process. The five questions were designed to elicit information from teachers which pertained to each of the stages. Answers to these five questions indicated whether the module had been successful in conveying to teachers its central theme -- that standardized tests and past evaluations are not of major value for an understanding of present functioning in children.

Pilot information revealed that these questions differentiated understanding of the decision-making process between two distinct groups. One group of master's students in special education who had participated in the module and were familiar with other diagnostic teaching models responded to the five questions by extensive reference to diagnostic teaching. The second group of students were regular teachers in a master's level philosophy of education course who had no experience in special education. Their responses to the five questions were assumed to be typical of the traditional teacher. As a group, they favored the use of standardized tests and were more inclined to feel that the child in the case study needed to be removed from the classroom. They generally felt unqualified to help such children, a feeling reflected in their responses.

Implementation. The second major purpose of the study was to determine the extent to which the decision-making process was implemented in the classroom. Implementation was evaluated through responses to a structured interview conducted in each teacher's classroom (see Appendix E). Although observing the teacher's classroom behavior was initially thought to be the most appropriate means of documenting level of implementation, attempts to develop an appropriate observation system uncovered difficulties. Observing the decision-making process requires such evidence as charts, record keeping, and hypothesis statements. These particular types of endeavors are not among those activities picked up while observing a teacher in a classroom. Consequently, the interview developed to assess decision-making stressed the need for teachers to show the interviewer evidence of record keeping, preparing charts, and the like. For this reason, the interview was always conducted in the teacher's classroom.

The interview questions assessed the teachers' interest in the decision-making process, their opinions on the modular presentation, and their attitudes concerning inservice training. Several different interview schedules were constructed that concentrated in more or less detail on specific aspects of the decision-making process. At first, the interview consisted of 32 questions, each relating to a particular subskill of the decision-making process. According to pilot information, teachers who were not involved in diagnostic teaching found most of the interview questions frustrating and meaningless. Since the design of this study included interviewing a control group, it was felt that very little information about the teacher's actual behavior would be elicited from a series of frustrating questions. Subsequent versions of the interview schedule attempted to modify this problem. Eventually, it became clear that a few general questions on how the teachers set up reading groups and how they kept track of students' progress, could determine the extent to which a teacher was engaging in diagnostic teaching. Supplementing these general questions were two questions on the teachers' opinions of the modules and one question on their evaluation of inservice education.

Responses to the case study questions and the interview responses were evaluated in a similar manner. Evidence from research using content analysis (Kerlinger, 1973; Kounin & Gump, 1961) indicated that the content of replies to questions can be analyzed using a code that reflects the objectives of the research. This study attempted to evaluate the extent to which the decision-making process was understood and implemented. Consequently, to ascertain teachers' understanding and use of the process, it was necessary to list the components of decision-making. This list reflected those categories of the decision-making process that teachers needed to mention in order to evidence comprehension and implementation of the decision-making process. If teachers referred to these categories, they would have met the objectives of the research. The categories of the decision-making process relevant to this study are:

A. Defining the Problem

   1. Observation
   2. Pupil Records
   3. Standardized tests
   4. Parent information
   5. Outside sources
   6. Profile of student

B. Developing and Testing Hypotheses

   7. Hunches
   8. Task analysis
   9. Learner analysis
   10. Diagnostic teaching lesson

C. Program Implementation

   11. Material modification
   12. States objectives and/or goals
   13. Charts and Record [illegible]eping

D. Evaluation

   14. Progress reporting
   15. Informal testing
   16. Teacher effectiveness

Three coders read through and evaluated each teacher's responses to the case study questions. The evaluation consisted of going through the category system and checking off those categories referred to in the teachers' responses. The transcripts of the interviews were similarly evaluated. Therefore, for each teacher, there was a list of checks beside those categories mentioned by the teacher in the case study and a separate list of checks beside those categories mentioned in the interview. Checks in each set were then summed to give each teacher a single measure of comprehension and a single measure of implementation. A more detailed account of the training of the individuals who evaluated the material, as well as the evaluation process, is found in Appendix F.

Analyses of Data

Planned orthogonal comparisons were conducted to evaluate the six directional hypotheses presented in Chapter II. Orthogonal comparisons of the average total scores on the comprehension measure were set up, as well as orthogonal comparisons of the average total scores on the implementation measure. Since there were four groups, three orthogonal comparisons could be arranged. In order to test the hypotheses, the same three comparisons were run on the comprehension data as were run on the interview data.

A post-hoc analysis was made of the contrast between the control group average scores and the module only group scores. This contrast was conducted to ascertain whether viewing the decision-making module only significantly influenced teachers' comprehension and implementation of the model.

Chi squares were computed subsequent to the planned comparisons. For each group, the number of teachers who mentioned each category of the decision-making process was determined. Comparisons of the resulting proportions were then made between the same treatment conditions as in the total scores.

The attitudes of the teachers toward the modular presentations and the inservice training were elicited through questions on the interview schedule. The responses of the teachers were rated according to expressed attitudes and felt needs and were analyzed by compiling percentages of teachers in each group expressing similar viewpoints. Groups were contrasted through chi squares for any significant differences.

CHAPTER IV

FINDINGS

The preceding chapter outlined the methodology used in this study. The first section of this chapter examines the data related to the six hypotheses predicting differences among the four groups of teachers in extent of comprehension and implementation of the decision-making process. The second section presents information on the teachers' use of the various components of the decision-making process. The third section outlines the teachers' evaluation of the modular presentations.

Comprehension and Implementation

Teachers in all four groups answered questions about a case study and were interviewed. Each separate case study response and each interview transcript was then content analyzed. This content analysis consisted of checking for the presence of certain statements which correspond to the decision-making categories outlined in the previous chapter. The number of categories checked for each individual teacher on the case study was summed for a comprehension score, and the number of categories checked for each individual teacher on the interview was summed for an implementation score. The means and standard deviations for each group on the comprehension and implementation measure are shown in Table 3.

Planned orthogonal comparisons were developed on the group means of the comprehension scores, and similar comparisons were conducted on the group means of the implementation scores. Each comparison

Table 3

Means and Standard Deviations on Comprehension and Implementation for the Four Treatment Groups

Measure	Statistic	Group 1 Control n = 14	Group 2 Module Only n = 14	Group 3 Module & Checklist n = 13	Group 4 Module & Consultant n = 18
Comprehension					
	Mean	5.93	7.14	10.54	10.61
	Standard Deviation	1.00	1.52	1.45	1.14
Implementation					
	Mean	5.07	6.64	9.40	9.83
	Standard Deviation	1.14	1.01	1.50	2.04

predicts *a priori* the results of one of the six hypotheses. Two separate one-way analyses of variances were computed to obtain the error terms for the planned comparisons. Table 4 summarizes the results of the contrasts of the differences of means.

Hypothesis 1: Teachers participating in the module on decision-making will understand the decision-making process significantly better than teachers not participating in the module.

The first planned orthogonal comparison of the case study ratings examined was a contrast of the average scores of the control group ($\bar{X}_1 = 5.93$) with the average scores of the three experimental groups ($\bar{X}_{2,3,4} = 9.43$). The contrast resulted in a $t = 8.92$, which was statistically significant at the .001 level. The ratings of the teachers on the case study questions showed that teachers in the three groups that received the module on decision-making mentioned decision-making processes significantly more than teachers in the control group.

Hypothesis 2: Teachers participating in the module on decision-making and receiving follow-up support in the form of a consultant or checklist will understand the decision-making process better than teachers participating in the module only.

The second planned orthogonal comparison with case study data was a contrast of the average of the scores of group 2 ($\bar{X}_2 = 7.14$) with the average of groups 3 and 4 ($\bar{X}_{3,4} = 10.57$). The contrast resulted in a $t = 8.29$, which was significant at the .001 level. The teachers who received follow-up support in the form of either a self-monitoring weekly checklist or a consultant mentioned decision-making processes significantly more often when answering the case study questions than teachers in the module only group.

Table 4

Summary of the Results for the Planned Orthogonal Comparisons

Hypotheses, Case Study	Case Study Means Compared*	*t* value 55 d.f.	Level of Significance
H.1: Experimental teachers greater scores than control teachers	$\frac{\overline{X}_2 + \overline{X}_3 + \overline{X}_4}{3} - \overline{X}_1$	8.92	$p < .001$
H.2: Follow-up teachers greater scores than module only teachers	$\frac{\overline{X}_3 + \overline{X}_4}{2} - \overline{X}_2$	8.29	$p < .001$
H.3: Teachers with a consultant greater scores than teachers with checklist	$\overline{X}_4 - \overline{X}_3$	.16	N.S.

Hypotheses, Interview	Interview Means Compared	*t* value 55 d.f.	Level of Significance
H.4: Experimental teachers have greater scores than control teachers	$\frac{\overline{X}_2 + \overline{X}_3 + \overline{X}_4}{3} - \overline{X}_1$	7.59	$p < .001$
H.5: Follow-up teachers have greater scores than module only teachers	$\frac{\overline{X}_3 + \overline{X}_4}{2} - \overline{X}_2$	6.02	$p < .001$
H.6: Teachers with a consultant have greater scores than teachers with checklist	$\overline{X}_4 - \overline{X}_3$	.81	N.S.

* $\overline{X}_1$ = Control group; $\overline{X}_2$ = Module only group; $\overline{X}_3$ = Module plus checklist; $\overline{X}_4$ = Module plus consultant.

Hypothesis 3: Teachers participating in the module and receiving weekly visits from a consultant will understand the process better than teachers participating in the module and receiving a weekly checklist of activities.

The third planned orthogonal comparison with the case study data was a contrast of group 3 ($\bar{X}_3$ = 10.54) with group 4 ($\bar{X}_4$ = 10.61). This resulted in a $\underline{t}$ = .16, which was not statistically significant ($\underline{p}$ > .30). Teachers who were visited by a consultant did not mention decision-making processes significantly more often on the case study questions than teachers who were given a weekly checklist to complete.

Hypothesis 4: Teachers participating in the module on decision-making will implement components of the decision-making process more often than teachers not participating in the module.

The first planned orthogonal comparison of the interview ratings was the same contrast as for the case study ratings ($\bar{X}_1$ = 5.07; $\bar{X}_{2,3,4}$ = 8.62). The contrast resulted in a $\underline{t}$ = 7.59, which was significant at the .001 level. The ratings of teacher interviews showed that teachers in the three groups receiving the module on decision-making mentioned using decision-making strategies significantly more often than teachers in the control group.

Hypothesis 5: Teachers participating in the module and receiving follow-up support will implement more components of the decision-making process than teachers participating in the module only.

The second planned orthogonal comparison of the interview ratings was a contrast between the average of group 2 ($\overline{X}_2 = 6.64$) and the average of groups 3 and 4 ($\overline{X}_{3,4} = 9.61$). This contrast resulted in a $t = 6.02$, which was significant at the .001 level. Teachers receiving follow-up support mentioned using decision-making strategies significantly more often than teachers who only viewed the module.

Hypothesis 6: Teachers participating in the module and receiving weekly visits from a consultant will implement the process more than teachers participating in the module and receiving a weekly checklist of activities.

The final planned orthogonal comparison was the contrast between group 3 ($\overline{X}_3 = 9.40$) and group 4 ($\overline{X}_4 = 9.83$). This contrast resulted in a [illegible] = .81, which was not significant ($p > .20$). Teachers who were visited by a consultant did not report evidence of the decision-making process in their classrooms statistically more often than teachers who received a weekly self-monitoring checklist.

A post hoc comparison was conducted on the differences between the means of group 1 and group 2. Table 5 presents the results of this comparison.

The question of whether the module only group comprehended decision-making significantly more than the control group was analyzed through a comparison of the difference between the mean of group 2 ($\overline{X}_2 = 7.14$) and the mean of group 1 ($\overline{X}_1 = 5.93$) on the case study. The comparison resulted in a $t = 2.46$, which was significant at the .01 level. When answering the case study questions the teachers who viewed the module on decision-making and did not receive follow-up

Table 5

Results of Post-Hoc Comparison of the Control Group with the Module Only Group

Comparison	t value 26 d.f.	Level of Significance
Case Study		
$\overline{X}_2 - \overline{X}_1$	2.46	$p < .01$
Interview		
$\overline{X}_2 - \overline{X}_1$	3.94	$p < .001$

support, mentioned decision-making strategies significantly more often than the control teachers.

The question of whether the module only group implemented more decision-making strategies than the control group was analyzed through a comparison of the difference between the means of group 2 ($\bar{X}_2 = 6.64$) and group 1 ($\bar{X}_1 = 5.07$) on the interview. The post hoc comparison resulted in a $t = 3.94$, which was significant at the .001 level. Teachers who viewed the experimental module made significantly more references to the decision-making process during the interview than the control teachers. Viewing the module itself resulted in a significant difference in the types of responses teachers made when responding to the case study questions and the interview.

In summary, these data indicate that teachers participating in the experimental module understood the decision-making process better than control teachers. Furthermore, teachers participating in the experimental module were more willing to implement certain parts of the decision-making model in their classrooms. Follow-up support facilitated understanding and implementation of the decision-making model. However, more personalized follow-up by a consultant who engaged in weekly discussions with teachers was no more effective than the weekly checklist.

Teachers' Implementation of Specific Decision-Making Components

Another pupose of this investigation was to determine what categories of the decision-making process teachers were more likely to implement. For each group of teachers, each category of the decision-making process was rated for the number of teachers who mentioned that particular category. The frequency of checks was computed into percentages and was used in the chi square analysis by groups. For each of the group contrasts run with the planned orthogonal comparisons, chi squares were computed by categories. Table 6 lists the percentages for each group by category and indicates those categories where significant ($p < .05$) chi squares were present. Table 9 in Appendix G lists all $\underline{x}^2$ values.

For purposes of discussion, categories of the decision-making process have been grouped under four headings: (1) defining the problem, (2) developing a tentative program, (3) implementing the program, and (4) evaluating the program.

Defining the problem. This stage of the decision-making process includes six categories (#1 through #6, Table 7). For each category, chi squares were computed for each comparison group. Comparisons between the module plus checklist group and the module plus consultant group produced no significant chi squares for any category in either the case study responses or the interview data. The only category teachers in the control group mentioned significantly more often ($p < .01$) when answering the case study questions was use of standardized test. All experimental groups mentioned category #1 (observation) and category #6 (profile of student) more often than the control teachers ($p < .01$). Teachers with follow-up support mentioned these two categories more often than the module only teachers ($p < .05$). During the interview, teachers who received

Table 6

Percentage of Teachers Mentioning Each Category Within Groups and the Significant Comparisons of Categories Across Groups

Category	Percentages for Groups Control Group 1 n = 14	Module Only Group 2 n = 14	Module and Checklist Group 3 n = 13	Module and Consultation Group 4 n = 18	Significant Comparisons[1]
ase Study					
1. Observation	.50	.78	1.00	1.00	A*, B**
2. Pupil records	.64	.50	.46	.83	
3. Standardized tests	.78	.14	.54	.44	A*, D**
4. Parent information	.50	.50	.69	.39	
5. Other sources	.57	.78	.46	.83	
6. Profile of student	--	.14	.69	.61	A**, B**
7. Hunches	.14	.57	.84	.61	A**
8. Task analysis	.07	.28	.61	.61	A**
9. Learner analysis	.92	.92	.92	.88	
0. Diagnostic teaching lesson	--	.07	.69	.72	A**, B**
1. Material modification	.71	.92	.38	.55	B**
2. Objectives	.07	.07	.69	.66	A**, B**
3. Record keeping	.28	.28	.69	.61	
4. Daily activities	.57	.71	.46	.66	
5. Informal testing	.14	.42	1.00	1.00	A**, B**
6. Teacher effectiveness	--	--	.46	.39	B**
nterview					
1. Observation	.57	.78	1.00	1.00	A**
2. Pupil records	.36	.71	.54	.83	A*
3. Standardized tests	.57	.28	.54	.33	
4. Parent information	.21	.21	.54	.66	B*
5. Other sources	.42	.57	.61	.94	
6. Profile of student	--	--	.54	.33	B**
7. Hunches	.14	.50	1.00	.88	A**, B*
8. Task analysis	--	.07	.69	.61	A**, B**
9. Learner analysis	.71	.71	1.00	.94	
0. Diagnostic teaching lesson	--	--	.54	.55	A*, B**
1. Material modification	.78	.85	.31	.50	B*
2. Objectives stated	--	--	.38	.55	A*, B**
3. Record keeping	.28	.57	.61	.55	
4. Daily activities	.64	.57	.69	.61	
5. Informal testing	.42	.71	.76	.61	
6. Teacher effectiveness	--	--	--	---	

[1] This column indicates those comparisons which showed significant differences χ^2, 1 d.f. tests.

Comparison A: Group 1 vs Group 2 + 3 + 4
Comparison B: Group 2 vs Group 3 + 4
Comparison C: Group 3 vs Group 4
Comparison D: Group 1 vs Group 2

*$p < .05$
**$p < .01$

follow-up were the only teachers who actually gave evidence of having developed a profile on a student. In addition, significantly more follow-up teachers than control and module only teachers mentioned the use of parent information ($p < .05$). Finally, teachers in all three experimental groups mentioned using pupil records significantly more often ($p < .05$) than teachers in the control group.

Developing a tentative program. The categories #7 through #10 (Table 6) are included under this major heading of the decision-making model. In both interview and case study data, hunches, task analysis, and diagnostic teaching lesson show significant differences between groups. In category #7, #8, and #10 all three experimental groups differed significantly from the control group. During the interviews, teachers who received follow-up showed evidence of task analysis and diagnostic teaching lessons more often than either the control group or the module only group.

Implementing a program. Only three categories (#11, #12, #13) are included under this major heading: material modification, stating objectives; and record keeping. Significant differences between the groups exist for the category #11 (material modification) and the category #12 (objectives stated). In both the case study responses and the interview data, the control teachers and the module only teachers mentioned significantly more often the modification of materials (category #11) than did the follow-up teachers. The follow-up teachers gave evidence significantly more often of having stated objectives in both instances.

Evaluating. The final three categories (#14, #15, and #16) are included under this heading. The interview data indicate that no teacher endeavored to analyze his/her own teaching performance. A majority of the teachers did indicate that they kept track of daily activities and did some informal testing. There were no significant differences between groups on categories #14, #15, and #16 in the interviews. In the case study data, some teachers in the follow-up groups (n = 12) did indicate that they understood the use of teacher self-evaluation by referring to it in their responses. Furthermore all of the follow-up teachers (n = 31) indicated that they would use informal testing in responding to the case study questions. This was a significant response in contrast with the responses of group 1 and group 2 teachers.

Summary. In general, teachers referred to categories that were more closely related to their typical teaching behavior, e.g., looking up pupil records, trying to get to know the student, observing students work and behavior. Those categories more specifically tied to the decision-making model, such as diagnostic teaching lessons, were only implemented by approximately half the teachers who received follow-up, and by none of the teachers in group 1 and group 2.

Attitudes of Teachers

The teachers in this study were asked during the interview to express their opinions about the module they viewed and the types of inservice training programs or assistance they thought would be beneficial. The responses to these questions were evaluated in a manner similar to the case study and other interview data. Each response to the questions about the modules was coded according to whether the teacher said he/she tried to implement specific parts of the decision-making process. Table 7 summarizes the results of this evaluation by groups, as well as the results of the chi squares run by comparison groups.

Most teachers in the control group expressed positive opinions about the module on personalized questions. Control teachers gave this module significantly more positive ratings ($p < .001$) than teachers in the experimental groups gave the decision-making module ($p < .001$). Teachers who received follow-up tended to have more positive attitudes toward the decision-making module than other experimental teachers although no significant differences were obtained. The control teachers consistently rated the personalized question module as practical, clear, and relevant. These opinions contrast significantly with those expressed by experimental teachers: practical, $p < .001$; clear, $p < .01$; relevant, $p < .05$. The control teachers also indicated significantly more often ($p < .05$) than other groups that they had tried to implement the ideas contained in the module. The module only group of teachers had a fewer number of positive responses to the module than teachers in all other groups ($p < .001$) on the category "implementation."

In regard to the types of assistance teachers felt would benefit them, categories of possible answers were generated. Each teacher's responses on the interview were then coded by the raters to evaluate

Table 7

Percentage of Teachers with Positive Attitudes Towards Modules and Significant Chi Square Comparisons

Attitude Category	Group Percentages				Significant Comparisons[1]
	Control Group 1 n = 14	Module Only Group 2 n = 14	Module and Checklist Group 3 n = 13	Module and Consultation Group 4 n = 18	
Practical	92.8	21.4	61.5	44.4	A***
Clear	85.7	28.5	30.7	50.0	A**
Relevant	85.7	50.0	61.5	50.0	A*
Implemented	85.7	36.0	76.9	72.2	A*, B***

[1] This column indicates those comparisons which showed significant differences on χ^2, 1 d.f. tests.

Comparison A: Group 1 vs Group 2 + 3 + 4
Comparison B: Group 2 vs Group 3 + 4
Comparison C: Group 3 vs Group 4

*$p < .05$
**$p < .01$
***$p < .001$

whether or not each item was mentioned. Every teacher had a response that could be placed in one or more categories. Table 8 indicates the set of categories and the percentages of those mentioning each one, as well as the significant chi square comparisons.

In all groups, a majority of the teachers favored acquiring new materials and equipment (57-71%), and a majority favored the use of resource teachers (57-100%). (The term resource teachers is used here to describe those people who work directly with students.) In general, then, most teachers felt that assistance should be in the form of methods and materials to use with a student or additional personnel to work with the student. A significantly greater percentage of the teachers in the combined experimental groups (84%) than in the control group (57%) reported a need for resource teachers. A teacher to work directly with students was seen as a very important, needed addition to any school. The two follow-up groups differed significantly from module only teachers in feeling that checklists and other guidelines were valuable to the teacher (65% vs 28%). Finally, group 4 teachers stated more often than any other group (72% vs 0% - 31%) that special education teachers could act as consultants and be helpful to the regular classroom teacher. This finding reflects an interest in having other teachers give suggestions as well as work directly with the student.

Summary of the Results

The analysis of the data gathered from 59 teachers indicated that teachers who viewed the experimental module evidenced greater

Table 8

Percentage of Teachers Favoring Various Alternative Inservice Assistance and Significant Chi Square Comparisons

Category	Percentage of Responses				
	Control Group 1 n = 14	Module Only Group 2 n = 14	Module and Checklist Group 3 n = 13	Module and Consultation Group 4 n = 18	Significant Comparisons[1]
Curriculum	.28	.50	.53	.55	
Resource teachers	.57	.71	1.00	.83	A*
Special education consultant	.00	.07	.31	.72	A**, B**, C**
Materials and equipment	.71	.57	.77	.66	
Checklists and guidelines	.28	.28	.84	.50	B*
Paraprofessionals	.14	.14	.31	.44	
Additional training	.07	.14	.46	.22	

[1] This column indicates those comparisons which showed significant differences on χ^2, 1 d.f. tests.

Comparison A: Group 1 vs Group 2 + 3 + 4
Comparison B: Group 2 vs Group 3 + 4
Comparison C: Group 3 vs Group 4

*$p < .05$
**$p < .01$

comprehension of the decision-making process than control teachers. The level of understanding was increased if teachers received some form of follow-up to the module. The type of follow-up (a checklist or a consultant) did not significantly influence the level of understanding.

The module also had an impact on the level of implementation of decision-making strategies in the classroom. Experimental teachers referred to aspects of the model when interviewed seven weeks after the initial modular presentation and differed significantly from control teachers in the extent to which they displayed implementation of decision-making in their classroom. The extent of implementation of specific aspects of the decision-making process was greater if the teachers received some form of follow-up to the module. The type of follow-up did not have a significant effect on the extent of implementation.

Teachers tended to refer to decision-making strategies that were most closely aligned with their typical teaching practices. Very few of the categories that specifically related to unique aspects of the decision-making process were referred to by teachers, although more references appeared in the case study data than appeared in the interviews. Experimental teachers tended to be less enthusiastic about the decision-making module than were control teachers about the personalized questions module. Among the groups receiving the decision-making module, the follow-up groups were more favorably inclined than the module only group.

With regard to teachers' perceived needs in the area of assistance, most teachers could see a need for more materials, equipment, and direct assistance with students. The follow-up groups were also able to see the benefits of direct assistance to teachers in the form of checklists. The group receiving consultation was the only group that consistently expressed a need for special education consultants to help teachers. Interestingly enough, very few teachers (13 out of 59) felt that they needed additional training.

CHAPTER V

DISCUSSION

A primary purpose of this study was to determine whether or not teachers can learn how to identify and manage children with learning difficulties through participation in a module designed to acquaint teachers with diagnostic teaching. A second major purpose was to determine whether or not the knowledge obtained in the modular presentation transferred to the teacher's classroom behavior. The final purpose of the study was to examine under what inservice setting teachers comprehended and implemented diagnostic teaching most successfully.

To investigate the major purposes of this study, teachers were randomly assigned to four groups and a different inservice format was used with each group. Teachers in the first experimental group (group 2) participated in the decision-making module. Teachers in a second experimental group (group 3) participated in the decision-making module and responded to a weekly checklist of decision-making activities for six weeks. Teachers in a third experimental group (group 4) participated in the decision-making module and interacted with a consultant for six weeks. A control group (group 1) consisted of teachers who viewed a module on the use of personalized questions.

Two dependent measures were used to evaluate the teacher's comprehension and implementation of the decision-making process. Responses to a simulated case study were used to indicate teachers' level of comprehension. Implementation of the decision-making process was examined through a structured interview of teachers. Indicators of a teacher's understanding and use of decision-making were identified by content analyses of the answers to the case study questions and the interview transcripts. This procedure involved searching each of the responses for statements that corresponded to the decision-making categories included in the model. Categories were checked as classifiable statements were discovered in the interview transcripts and in the answers to the case study questions. The total decision-making score for each interview was the number of classifiable statements represented by checks. The comprehension score was the number of classifiable statements in the response to the case study questions. The average scores for each group on each of the dependent measures were contrasted through planned orthogonal comparisons to determine the accuracy of six directional hypotheses.

Four of the six hypotheses proved to be significant ($p < .01$). Teachers who viewed the decision-making module demonstrated a better understanding of the decision-making process and were more likely to mention using the process than teachers who viewed a module on personalized questions. When the inservice format was enlarged to include follow-up support in the form of either a checklist or a consultant, teachers understood and implemented the decision-making process significantly more than teachers who only viewed the module.

The two remaining hypotheses predicted a higher comprehension and implementation score for teachers who interacted with a consultant than for teachers who were given a self-monitoring weekly checklist. These hypotheses were not shown to be significant ($p < .40$). Subsequent analysis of groups by categories indicated that teachers tended to mention those categories most closely related to their present teaching behavior and that neither follow-up group engaged in a specific decision-making strategy more than once.

Interpretations

Interpretations of the results of the experimental treatments are limited by a number of factors. First, very little control could be exerted over teachers in the vastly complex environment of the elementary school. Teachers were asked not to discuss the modular presentations with each other, although they were encouraged to involve themselves as much as possible in the inservice programs. Neither of these slightly contradictory requests could be monitored. Second, some teachers seemed to express a lack of motivation to continue their involvement in the study once the modular presentation was completed. For example, one teacher in group 2, pointing to the flow chart, said, "This thing here doesn't make any sense to me. How can I do this?" Another teacher said, "Well, it's all well and good to show us pretty photographs but I have my own way of doing things and I'm not going to change that." Third, even though teachers volunteer for a project, they may not find the information being presented relevant to their particular needs. Fourth, six weeks was a very small amount of time in which to encourage changes especially during the spring when teachers and students were beginning to wind down for the summer vacation.

Another factor creating difficulties for interpretation stems from limitations in the measurement instruments. The simulated case study was an appropriate method for acquiring information about teachers' comprehension of a set of facts.. Comprehension was interpreted as the ability of teachers to recall aspects of the decision-making model and use them appropriately in answering a series of five questions. The average score of each experimental group reflected more references to decision-making than the average for the control group. This interpretation creates some difficulty due to the nature of the evaluation. To receive credit, teachers in the experimental groups needed only to mention specific stages of the decision-making process. This scoring procedure measured a minimal level of comprehension. Furthermore, the category system, as well as the explanations of the types of statements that could be included in any one category, was fairly broad, particularly for coding interview data. To compensate for this problem, each interviewer was instructed to probe, whenever possible, for clarification of the teacher's meaning. For example, if a teacher said, "Well, I usually observe the kids who are having problems," the interviewer should have asked the teacher to explain the meaning of "observe." This was done in most, but not all, cases. When a rater read through an interview transcript and found a teacher saying "I observe" a number of times, the "observation" category was checked, even when the interviewer had not probed for specific meaning. For some categories, then, a wide range of behaviors may have been reflected by the check mark. Because of these difficulties the results have to be interpreted cautiously. Results are clear-cut only where evidences of teacher's implementation of the decision-making process were required.

Despite these limitations, the results of this study indicate that some teachers enjoyed the modular approach to instruction and were motivated to implement various aspects of the decision-making process. The data also suggest that inservice programs should include some type of follow-up support. The module only teachers expressed the least appreciation and support for decision-making. Group 3 and group 4 teachers engaged in decision-making behavior more than teachers who did not receive follow-up. This difference between experimental groups indicates the importance of *in situ* follow-up endeavors, whether to clarify issues presented during the initial inservice training or to motivate teachers to utilize the methods and techniques suggested.

The finding that follow-up support by a consultant was no more effective than use of a weekly checklist needs to be examined more carefully. One explanation could be that the module plus the checklist was a sufficient method of instruction and the consultant was, therefore, not needed. A second explanation could be that the consultant follow-up in group 4 was just beginning to have some impact on the teachers. It was extremely difficult to get the majority of the teachers in group 4 to discuss their own students and their own individual problems with the consultant. For approximately three of the six weeks, the teachers wanted to discuss the module, the model, and their feelings about the study. They had difficulty viewing the consultant as someone to confide in concerning other aspects of their school day. Consequently, time may have played a role in the group 4 treatment because strategies were discussed only during the last three weeks of the six-week period. Furthermore, since change agents are effective only after they are accepted, the amount of time required for the consultant to be accepted may have interferred with the group 4 treatment. Therefore, even if teachers receiving follow-up support from the consultant had comprehended the decision-making process better than other groups, this may have been obscured by the shorter time period these teachers had to consider implementing decision-making strategies.

Another possible explanation for the similarities in scores for group 3 and group 4 could be that teachers were not prepared to do any more with decision-making. On the whole, most teachers did not want to implement aspects of the model that were drastically different from their typical pattern of teaching behavior. For example, only 13 of 31 teachers in groups 3 and 4 actually tried to put together a profile of a student. Each of these 13 teachers tried only once, and with only one student, to assemble a profile. Sixteen teachers did not indicate any attempts to write objectives for students, even for one aspect of their program. Few teachers attempted a diagnostic teaching lesson, and for those who did, the lessons varied a great deal in terms of quality and similarity from the original. This explanation for the similarities in scores for group 3 and 4, is supported by many who work in the area of change and innovation (Rogers, 1962). People are more likely to adopt an innovation if it is not too much different or too much more difficult than their present practice. The use of personalized questions by the control teachers is a good example. Personalized questions can be inserted into class discussions without a great deal of preparation.

It is interesting to note that the control group and group 2 were significantly different in one area from group 3 and group 4. Teachers in group 1 and group 2 referred more often to strategies that could be categorized as material modification (e.g., "you get a lower grade level reading book"; "you keep having the students review addition and subtraction and not let them keep up with the class"). There is an element of concern for individual students in these examples that approximates a type of decision-making. However, the focus of this decision-making is on curriculum rather than on understanding the individual student. Teachers in group 3 and 4 (18 out of 31) were less likely to refer to such techniques, which may have indicated some realization that it is not always the curriculum that needs modification. Still, such "material modification" as giving a child a lower grade level reading book is common, accepted practice, and teachers generally gravitate toward that type of approach.

Finally, consideration should be given to the response of teachers to the question, "What kinds of assistance do you see teachers benefiting from?" Group 4 teachers tended to favor the use of a special education person in the role of advisor to the teacher. Group 3 teachers favored the use of checklists along with other forms of assistance. Group 1 and group 2 teachers tended to favor helping the children through a new curriculum or another teacher. Once again, this may reflect the fact that groups 1 and 2 were making traditional choices and groups 3 and 4 were making choices based on their exposure to the supplemental treatment. If so, the strongest impact of the module and subsequent treatments may well have been to cause a general re-thinking of how a classroom teacher might work with children as opposed to a great deal of observable behavior change. Such re-thinking would, in fact, be a major step and a reasonable use for the module. It is important to realize, however, that a majority of all teachers favored assistance in the form of materials and equipment and a resource teacher. Teachers want answers to difficult situations through direct help with students. They are less interested in re-thinking the needs of students.

Implications

The mainstreaming movement insists that all children have a right to education. As a consequence, many more teachers will be interacting with students who exhibit learning and behavior problems needing individual attention. For mainstreaming of exceptional children to be successful, teachers need to become more able to identify and manage exceptional children. It is evident from this study that a majority of teachers would prefer to have students with learning and behavior problems programmed through a new set of curriculum materials or removed from their rooms for all or part of the school day for special services from resource personnel. Since removal from classrooms is not the intended method for handling all exceptional children, teachers must change their perceptions of their roles as educators.

The present study has clearly supported the belief that change is more likely to occur with appropriate support. The form of support necessary for continued change is not as clear. Further research should focus on the presentation of new ideas at the beginning of the school year and follow up these ideas for longer periods of time. Additional efforts should concentrate on obtaining evidence from teachers in a variety of settings, on varying such things as present practice, years of experience, classroom arrangements, etc.

Research in this area should be more profitable if additional administrative support and cooperation for the effort is secured. Researchers from outside the system must spend time locating individuals who can influence teachers, a task handled more easily with the cooperation of someone within the system. It may also be necessary for the teachers to be involved in the development of the program in order to reduce the amount of confusion and lack of clarity.

At this point, it is still unclear whether the decision-making module has any meaningful impact on teachers. Those teachers who viewed the module and did not receive follow-up support showed a significant difference from control teachers in their responses to both the case study and the interview. On the other hand, the module only teachers expressed the least amount of satisfaction with their inservice program. It appears, then, that the impact of the module is limited without continued support. These findings suggest a need for further analysis within a variety of settings before any conclusive statement can be made as to the effectiveness of the decision-making module for inservice training. Consideration should be given to incorporating a self-monitoring checklist into the module and examining the impact of this modification on the utility of the module for influencing teachers.

Further consideration should be given to using the decision-making module in conjunction with other instructional packages. These additional materials could elaborate on various sections of the decision-making process. In this way, teachers would be given more time to understand the process components and how these components can be made to fit into the classroom. Systematic evaluations of these modifications would be necessary before conclusions could be drawn concerning the reasonableness of asking classroom teachers to change their classroom behavior.

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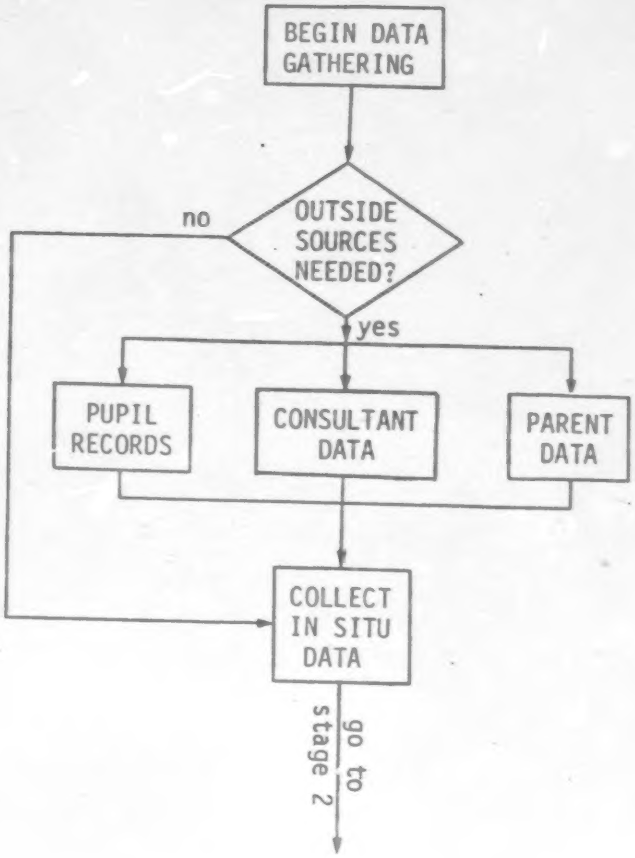
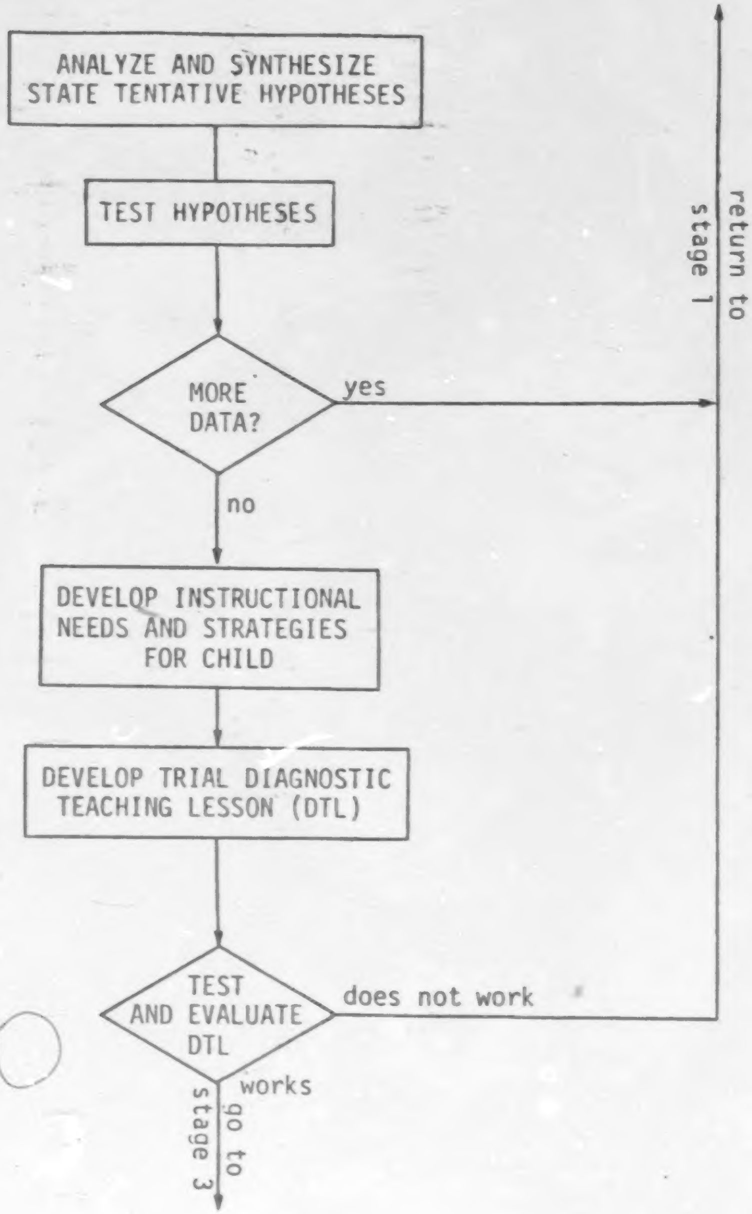
APPENDICES

APPENDIX A

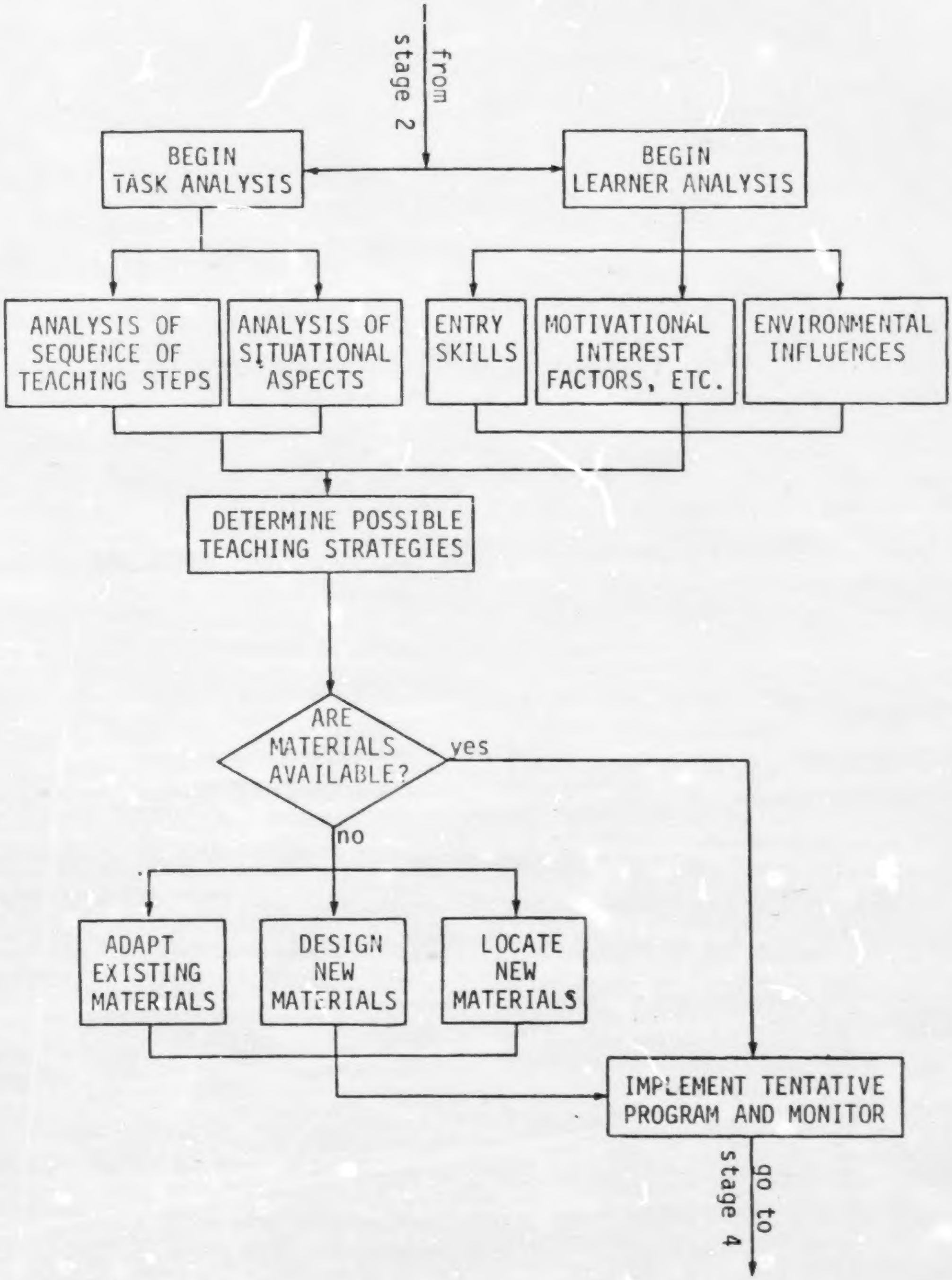
Flow Chart of the Decision-Making Model


BEGIN DATA GATHERING
OUTSIDE SOURCES NEEDED?
no
yes
PUPIL RECORDS
CONSULTANT DATA
PARENT DATA
COLLECT IN SITU DATA
go to stage 2

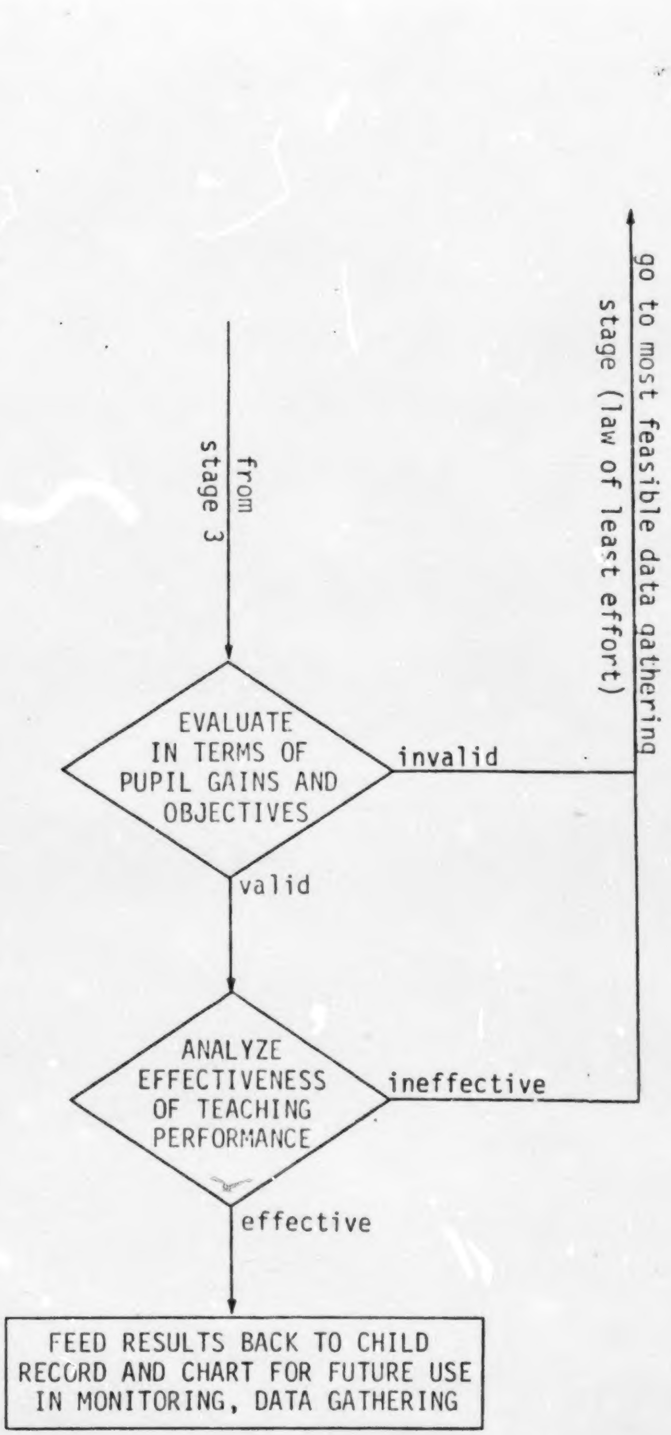
Stage 1: Assessing the Problem.


ANALYZE AND SYNTHESIZE
STATE TENTATIVE HYPOTHESES
TEST HYPOTHESES
MORE DATA?
yes
return to stage 1
no
DEVELOP INSTRUCTIONAL NEEDS AND STRATEGIES FOR CHILD
DEVELOP TRIAL DIAGNOSTIC TEACHING LESSON (DTL)
TEST AND EVALUATE DTL
does not work
works
go to stage 3

Stage 2: Developing a Tentative Program


from stage 2
BEGIN TASK ANALYSIS
BEGIN LEARNER ANALYSIS
ANALYSIS OF SEQUENCE OF TEACHING STEPS
ANALYSIS OF SITUATIONAL ASPECTS
ENTRY SKILLS
MOTIVATIONAL INTEREST FACTORS, ETC.
ENVIRONMENTAL INFLUENCES
DETERMINE POSSIBLE TEACHING STRATEGIES
ARE MATERIALS AVAILABLE?
yes
no
ADAPT EXISTING MATERIALS
DESIGN NEW MATERIALS
LOCATE NEW MATERIALS
IMPLEMENT TENTATIVE PROGRAM AND MONITOR
go to stage 4

Stage 3: Implementing a Tentative Program


from
stage 3
go to most feasible data gathering
stage (law of least effort)
EVALUATE
IN TERMS OF
PUPIL GAINS AND
OBJECTIVES
invalid
valid
ANALYZE
EFFECTIVENESS
OF TEACHING
PERFORMANCE
ineffective
effective
FEED RESULTS BACK TO CHILD
RECORD AND CHART FOR FUTURE USE
IN MONITORING, DATA GATHERING

Stage 4: Evaluation

APPENDIX B

The Self-Monitoring Weekly Checklist

Checklist

Name________________________________ Date________________

Self-Monitoring Weekly Checklist

	Yes	No	Not Ready	Not Necessary
1. Looked at pupil records.				
2. Consulted with another person.				
3. Observed child: in class on the playground other areas				
4. Kept a written account of observations				
5. Talked to parents				
6. Collected samples of child's work				
7. Constructed a profile of child's strengths and weaknesses.				
8. Developed hunches about child's learning problem.				
9. Developed a diagnostic teaching lesson (DTL).				
10. Taught a DTL				
11 Evaluated a DTL				
12. Collect more data.				
13. Analyzed the sequence of teaching steps.				
14. Analyzed situational aspects				
15. Know child's entry skill level				
16. Considered motivational needs.				
17. Considered environmental facters.				
18. Located or designed appropriate materials				

	Yes	No	Not Ready	Not Necessary
19. Adapted existing materials				
20. Implemented instructional strategy				
21. Monitoring child's performance				
22. Progress is being made				
23. Child has met preliminary objectives				
24. Analyzed own teaching performance in relationship to child				
25. Evaluated appropriateness of objectives in light of pupil performance				
26. Evaluated objectives in light of teacher performance				
27. Evaluated objectives in light of classroom environment.				
28. Consultation with resource personnel.				

APPENDIX C

Summary of Consultant Activities

The structure of the third experimental group (group 4) resulted from an evaluation of the research on effective inservice training. Inservice education appears to change teacher behavior in the classroom only when there is _in situ_ programming and some mechanisms for follow-up and feedback. Consultation with teachers in their own schools incorporates both of these features. Therefore, the addition of a consultant after presentation of the module was seen as potentially the most effective inservice program.

The consultant has been referred to as a facilitator, objective observer, and specialist in the diagnosis of needs, the identification of resources, and the retrieval of information from expert sources (Havelock, 1973). For the most part, the consultant tells _how_ to do something in contrast to someone who merely tells _what_ something is about. Since one of the basic assumptions of the role of consultant is that only the client can determine what is best for him/her, assistance can be provided in the form of collaboration (Costanza & Klapman, 1973), consultation (Blessing, 1968), and/or encouragement (Havelock, 1973). A consultant is flexible in terms of what advice s/he gives, depending upon the teacher's needs and problems. In a sense, the consultant is an active participant, a collaborator, and, at times, a conveyor of knowledge about the process.

Kuzniar (1973) conducted a case study of the role of a consultant in an elementary school. He was particularly concerned with teacher interventions with children who exhibited disturbing behaviors in the classrooms. He found certain strategies that seem to be more effective for pupil change:

(1) The consultant ought to work with the teacher.

(2) There is a need for the consultant to understand, accept, and respect the teachers' condition.

(3) The consultant and the teacher made a commitment to each task. After a task had been devised, the consultant wanted to hear the teacher say "I will do it," not "I'll try."

(4) The consultant developed a climate of experimentation in which mistakes, failures, and successes were to be expected.

Williams (1966) suggested that, at the initial stages of development, certain characteristics, such as friendliness, responsiveness, familiarity, and competency, may need to be accentuated. Initial encounters make clear to teachers that the consultant is "an old hand" at teaching, particularly when the consultant does not look like an old hand at anything. It is also important to communicate a willingness, even eagerness, to understand and listen to the problems of the teachers without judgment. Williams is suggesting that by setting your role and image as a facilitator and a sympathizer, you allow for a more meaningful teacher-learner relationship (in this case, consultant-teacher relationship).

The consultant will need to develop a "mutuality of trust." Sarason (1971) has described several myths which pervade the public schools. Among them are teachers' feelings that they should be competent and responsible for all gradations of curriculum and behavior within their classrooms, and that to seek help reflects some kind of failure. This sense of isolation is strong, and the person coming in can expect to meet many kinds of subtle resistance.

Falik and Sichel (1972) suggest that the most crucial variable in developing working relationships is the provision of adequate opportunities for the teacher to share process considerations with the consultant. The Falik and Sichel inservice consultancy programs involved regular follow-up, informal observation, and sharing of concerns. Contacts with teachers began through curriculum workshops, followed by regularly scheduled visitations to the schools where consultants participated in planning committees and acted as both troubleshooters and advisors. While the consultants were involved, new strategies were tested out in classrooms. Meyen's work with consultant teachers in Iowa (Meyen, 1968) confirms that communication between consultants and teachers of the mentally retarded allows teachers to consider new teaching strategies with a minimum of anxiety.

Equally important is the help this linkage gives to teachers in viewing themselves as part of the problem-solving process. Constanza and Klapman (1973) found it was not uncommon to hear from a teacher that s/he was not a specialist and could not solve learning problems, in spite of his/her probably being the most critical and knowledgeable specialist working with the child in question. The general consensus of investigators is that teachers are more likely to involve themselves in actual decision-making about children's problems when they have assistance from a consultant. This assistance can be as negligible as bi-weekly "chats" and still have an effect on teachers' opinions of their own ability to change behavior.

An interesting inservice program run entirely through "advisors" was initiated by Katz, Morpurgo, Asper, and Wolf (1974) in Illinois. As indicated in Chapter II, the advisors were very active participants in the school lives of the teachers. In describing the attitudes of the advisors toward their roles, two interesting points were raised. First, a major aspect of the advisory approach was to resist the temptation to give answers, solutions, or direct advice. The rationale was that succumbing to that temptation might serve to increase teachers' tendencies to see themselves as consumers rather than generators of "answers" and "solutions." Advisors found that resistance to such temptation undermined their credibility in the eyes of the teachers. The need to establish credibility of expertise fairly early in the advisor-teacher relationship overrode the earlier plan to abstain from explicit "answer" giving. Second, the advisors noted that teachers seemed to be lonely and/or "suffering from a sense of isolation" and seemed to enjoy or even "indulge" in the companionship advisors provided.

In summary, the literature on the role of consultants in public schools describes the behavior and characteristics of successful consultants. The successful consultant is a facilitator, observer, and specialist in the diagnosis of needs, the identification of resources, and the retrieval of information. During the process of telling how to do something, the consultant may demonstrate techniques, select appropriate instructional materials, outline important procedures, and solicit teacher commitment. Encouraging teachers to try new strategies will cause the consultant to provide support, to share set backs, to develop a climate which expects mistakes as well as successes, and to give feedback on observations of classroom activities.

Consultants will also have to be sensitive to initial encounters, school climates, anxieties, hostilities, and other reactions to their presence. They will be collaborators with teachers and, in that sense, will need to show a real awareness of the teachers' condition and, as Sarason has stated, develop a "mutuality of trust."

Role of the Consultant in this Study

For the purposes of this study, certain modifications in the activities of the consultant had to be made. For one thing, the consultant could not be with all 18 teachers during the school day. To insure some uniformity of presentation of this "treatment," the consultant arranged to meet with all the teachers in group 4 after school. Teachers in school district A were seen on Mondays, teachers in school district B on Wednesdays, and teachers in school district C on Thursdays. The only change in this routine occurred when one teacher asked if the consultant would watch her do a diagnostic teaching lesson. The consultant's not being in the schools while students were there may have limited her level of involvement and also lessened teachers' interests.

Another modification in the consultant's role for the purposes of this study involved the decision not to locate instructional materials for teachers or alert teachers to resources. Bringing new materials into the classroom could be construed as yet another type of treatment. The consultation in this study consisted only of listening, answering questions, and making suggestions based on materials and equipment already in the classroom. This limitation may well have been detrimental to the credibility of the consultant. Every teacher asked for material at some point during the six-week treatment. Attempting to sidestep the issue of giving resources to the teachers was awkward, particularly when a solution did not seem apparent in the existing environment.

As indicated, the consultant listened to teachers' problems, answered questions about the model and about children, and gave suggestions when asked. Giving suggestions involved telling a teacher and, in three cases, demonstrating how something might be done. Unfortunately, this demonstration never included children. Teachers may be more accepting when they actually see something in operation with students.

Finally, there was a time constraint which necessitated seeing teachers for ten-minute periods, particularly in school district B where the school day went until 3:15 and teachers usually left the school building by 3:30. Ten minutes once a week was not enough time to get to know some teachers. Five of the teachers in group four (27.8%) indicated that they had not implemented any specific aspects of the decision-making model. These teachers were, for the most part, friendly and interested individuals, but they never gave any time to the consultant or the model. When the consultant came to visit with them, they would be busy correcting papers, working with students, or attending a meeting. They generally felt that they "really didn't have the time." On two occasions with three of these five teachers, the consultant deliberately stayed longer with them and talked and, in one case, showed the teacher how to do task analysis (this teacher did refer to task analysis during the interview). It is conceivable that a longer period of time might have necessitated more involvement on the part of these five teachers. Visits from the consultant during the day also might have helped.

As indicated, the consultant engaged in three general activities with teachers. She answered questions, listened, and made suggestions. The following brief description of each one of these activities illustrates the difficulties involved in making an "impression" on the teacher.

For the first three weeks, the 18 teachers were only interested in talking about the modular presentation and the decision-making model. These question and answer periods included complaints and criticisms of the presentation, as well as requests for clarification on some points. During the first meeting, teachers had to be reminded of who the consultant was and what the presentation had been about. Some teachers rummaged around in their desks until they found the response booklet hidden under mounds of paper work. On the second or third visit, the teachers generally were ready with a few questions. These questions ranged from straight forward interest in the model to questions about the Center for Innovation in Teaching the Handicapped and special education in general. There was a great deal of interest in mainstreaming and the value or lack of value in putting handicapped students in their classrooms. For the most part, this was a period of curiosity: "who are you?", "where do you come from?", and "why are you doing this?". Any concern the teachers had about the consultant being a spy for the administration was worked through, as well as whether the principal and the consultant were allies. One teacher asked if the decision-making model was going to be forced on all teachers in the next school year when the district begins mainstreaming.

With the third and fourth visit, questions such as those described above stopped, the teachers started complaining, and the consultant entered the second phase--listening. The teachers had complaints about their school, the principals, desegregation, parents, and many other things. When they talked about the children in their classes, they expressed concern over the lack of materials and equipment, over too many children in each classroom and over the lack of support for doing anything new and different.

Besides complaining, the teachers started to talk about how they ran their classrooms. They began to describe individual children, and how these children fit into the group, and their attitudes about them. For most teachers, there were at least two consultant visits spent just "chatting" about themselves, their lives as teachers, and their students. These chats provided an opportunity for the consultant to move from empathetically listening to complaints to offering some suggestions about children. For some teachers, these initial suggestions prompted a whole new approach to the consultant--soliciting information. For other teachers, the listening phase never progressed. In these cases, the consultant perceived that the small suggestions were not being interpreted. The teachers were not picking up on the suggestions as a topic for discussion. Furthermore, the teachers wanted the consultant to listen or to bring them the answers in the form of new materials and/or equipment. An analysis of the complaints written down in the consultant diary shows that teachers were saying they did not have time and therefore wanted help in the form of new equipment and material or they wanted someone else to work with the children having problems. One teacher kept a boy after school so the consultant could work with him. Unfortunately, the teacher left the room, and the consultant could not even demonstrate some strategies.

For a few teachers, however, the listening phase moved rather smoothly into the suggestion phase during the fourth and fifth weeks. At this point, the teachers were willing to discuss alternative instructional strategies and try to employ some material presented in the module. Teachers at this stage, generally, wanted to include the consultant in their teaching approach only to show them how to do something or to discuss the pros and cons of some approach. Some teachers were very willing to learn how to do task analysis and a diagnostic teaching lesson on paper, but they did not always indicate any interest in trying these techniques. For the most part, the consultant felt the teachers were being kind to her and at least trying some things once for her sake. The suggestions that were implemented were such things as using an upper grade student to work with children in problem areas and trying to have all reading groups meet in the morning, especially for second graders.

Four teachers started to work with the consultant in the expected manner. These four teachers wanted to analyze problems, make lists, and try things out. In a sense, they were already decision-makers who just needed someone to listen to them. For these teachers, the consultant demonstrated the teaching and evaluation of a diagnostic teaching lesson and, in one case, made a special trip to observe the teacher give the lesson. Changing the classroom environment seemed sensible to these four teachers, and they were ready to have another group or individualize or do whatever might work. It was unfortunate that the study necessitated ending involvement with those teachers, for they were the kind of individuals that could be labeled "innovators" or what Miles (1964) calls "cosmopolites." They were and are ready for new ideas and changes.

In summary, the role of the consultant was mainly one of listener and sympathizer. The majority of teachers expressed curiosity about the module and special education, and the consultant was expected to speak to that curiosity (or hostility, at times). A few teachers began letting the consultant become part of their teaching lives by talking about students and instructional techniques. The consultant found some teachers more interesting than others and had to remember to give as much attention to some teachers as to others. The consultant also had to indicate explicitly her experience with children (which was doubted by some) and, in one funny incident, had to document her age to one teacher. These types of behaviors took up most of the six-week period, and the need for another six weeks to work just on decision-making was apparent. Since five of the teachers were reluctant from the start, six more weeks were needed just to get them to phase two, listening, where they would start telling the consultant about themselves. The strongest "feeling" on the part of the consultant was the validity of this approach for helping teachers. Teachers generally enjoy sharing ideas, and the resultant communication would definitely affect students. Unfortunately, the data do not support these "feelings" at the present time.

APPENDIX D

The Simulated Case Study and Comprehension Questions

CASE STUDY

Cumulative Record

Mountain County Community School Corporation

Classes Attended

Entry Date	School	Grade	Teacher
1970 - 71	Castle	Kgtn.	Mrs. Green
1971 - 72	"	1	Miss Raven
1972 - 73	"	1	Mrs. Gilsdorf
1973 - 74	"	2	Mr. Frick
1974 - 75	"	3	Mrs. Walsh

Pupil: David Greenley

Father: Peter — Living: Yes
Address: 3 Maple Street
Nashville
Occupation: Painter — Firm: Acme Paint Company

Mother: Florence — Living: Yes
Address: same as above
Occupation: Salesclerk — Firm: Goodboy's Inc.

Brothers and Sisters:
Bryan - 22
Jane - 13
Jill - 2

Health Record:

Normal childhood diseases

Vision Check: Normal — Hearing Check: Normal

ELEMENTARY SCHOOL RECORD

Grade	Kgtn.	1	1	2	3
School Year	70-71	71-72	72-73	73-74	74-75
Reading		U	U	D	
Writing		U	S	C	
Spelling		U	U	D	
Arithmetic		S	S	C	
English		U	U	F	
Social Studies		S	S	C	
Science		S	S	C	
Health		S	S	S	
Art		S	S	S	
Music		S	S	S	
Physical Education		S	S	S	

Teacher	Green	Raven	Gilsdorf	Frick	
Days Present	165	170	173	168	
Days Absent	15	10	7	12	
Times Tardy	6	8	2	11	

Comments:

Testing:

Test	Score	Date
Otis Quick-Score IQ Test	93	11/71
Metropolitan Readiness	below average	9/71
Metropolitan Readiness, Form F	below average	9/72
Stanford Achievement Test		10/73
Reading	1.3	
Math	1.6	
Total	1.4	
Stanford Achievement Test		10/74
Reading	1.8	
Math	2.1	
Total	1.9	
Keystone Telebinocular	normal	
Bellton Audiogram	normal	

Mountain County Community School Corporation

Remarks

Kindergarten

Fall, 1970-
David is a very active boy who is well like by his peers. He has problems with cutting, pasting and general coordination.
Spring, 1971-
David is constantly moving. He still has problems with general readiness work.

First Grade

Fall, 1971-
David is doing readiness work in reading and math. He needs constant reminders to keep him working.
Spring, 1972-
David has not progressed enough to be promoted this year. He is still at a readiness level.

First Grade

Fall, 1972-
David has learned a dozen new sight words this Fall. He is really trying to concentrate.
Spring, 1973-
David has become very agressive with the other children. He has not moved along on reading and math as has been expected.

Second Grade

Fall, 1973-
David has settled down this year and is reading at a first grade level. His arithmetic performance has also improved.
Spring, 1974-
David daydreams constantly and has difficulty completing his school assignments. He has needed many reprimands for agressive behavior with other children. Psychological testing has been recommended.

Mountain County Community School Corporation

Parent-Teacher Conference
Date: April, 1972

Name of Child: David Greenley
Name of Teacher: Miss Raven

I met with David's brother, Bryan, before school on April 16, 1972. Mr. & Mrs. Greenley both work and are unable to attend any meetings. This was the third meeting set up to discuss David's school progress. With some difficulty, I explained to Bryan that David had not progressed academically or socially in the first grade and ought to be retrained. Bryan stated that both he and his sister had repeated first grade and that the family figured Dave would also.

Mountain County Community School Corporation

Parent-Teacher Conference
Date: April, 1973

Name of Child: David Greenley
Name of Teacher: Mrs. Gilsdorf

I reported to Bryan, David's brother that Dave has not been able to keep up with the class again this year though he is not as far behind as before. He has also become very agressive with the other children. I explained that I thought he was becoming frustrated by his inability to keep up with his classmates.

Since the policy of the school is not to retain a child for a second time, I suggested to Bryan that his parents get a tutor for Dave during the summer. Bryan stated that he and his sister Jane would help Dave.

Mountain County Community School Corporation

Parent-Teacher Conference
Date: March, 1974

Name of Child: David Greenley
Name of Teacher: Mr. Frick

I insisted on an evening meeting with Mr. & Mrs. Greenley. Mrs. Greenley arrived, alone, 30 minutes late for the meeting. I explained that Dave was having numerous problems in school both social and academic. Mrs. Greenley stated that Bryan and Jane helped Dave with his school work and she couldn't understand why the school couldn't do its part of the job. She felt that the schools had never helped any of her children. I indicated to Mrs. Greenley that perhaps special class placement was the answer. She stated that David was not a "retard." She finally agreed to allow psychology testing but not placement.

Special Services/Remedial Reading
December, 1974

Re: David Greenley

Mr. Frick, David's second grade teacher, referred Dave to the Remedial Reading Unit because he was not maintaining his own gains in reading. Mrs. Walsh, his third grade teacher, feels he is a non-reader. He apparently refuses to read at all in her class.

I tested David on the Keystone Telebinocular and found no apparent visual problems. He was very jumpy during the testing.

I am unable to fit David into my schedule at the moment. I recommend that Mrs. Walsh get some first grade level reading material and let anotner child in the room help David work on these, until I am able to schedule him for further testing and remedial assistance.

Special Services/Psychology Testing
December, 1974

Re: David Greenley

Reason for Referral:
In conference with both Mr. Frick and Mrs. Walsh, it was learned that David is a very hyperactive child who is not progressing academically as expected. He is now in the third grade and well behind his classmates academically.

Comments:
David wandered around the testing room at first asking alot of questions about what I did. He finally sat down and managed to stay in his seat during the session, though he fidgeted constantly. Repeated breaks were taken to insure attention. David did not appear to pay much attention to the examiner's praise.

Results:
The Wechsler Intelligence Scale for Children (WISC) was administered. The results indicate a full scale I.Q. of 101. His verbal I.Q. was 113 and his performance I.Q. was 89.

Observations:
David's performance on the WISC was average and better on all verbal subtests. He had no difficulty in utilizing knowledge involved in reasoning. His memory for non-meaningful material (digits) was not as good. On the performance subtests, David showed a great deal of confusion with all visual-motor tasks.

Recommendations:
The discrepancy in scores on the performance and verbal subtests leads me to recommend that David receive a neurological exam. Special services can not be considered until the results of the neurological exam are obtained.

Sincerely,

S. Rockman,
School Psychologist

Mountain County Community School Corporation

Special Services/Speech and Hearing
November, 1974

Re: David Greenley

David was referred last Spring for the purpose of a hearing test. In conference with his present teacher, it was reported that "David could hear just fine when he wanted to." However, Mrs, Walsh did indicate that he was not doing well in the phonics program.

Observations:
David was not eager to participate in the testing until he was the head phones. He was unable to sit still during the testing which did not however seem to effect his hearing.

Summary of Results of Testing
Belltone Audiogram showed no decibel loss in either ear.
Auditory Discrimination Test results indicate some difficulty discriminating final consonant sounds and vowel sounds.

Teacher Observational Record - Mrs. Walsh

Sept. 30	David did not join the other children on the playground, but played alone with some blocks.
Oct. 1	David seemed very tired today. He chose to stay in during recess, complaining of an earache.
Oct. 5	David seemed very pleased when he was appointed to care for the classroom's pet turtle.
Oct. 6	David is up taking care of the turtle every five minutes.
Oct. 7	David is inattentive during our pre-reading discussion groups. He still does not discriminate between "g" and "d" even though we have worked on these sounds for two days.
Oct. 8	David seems to daydream often during class time. When we are working in a book, he turns to a new page only after seeing the other children do so.
Oct. 9	David spends a good deal of any day either daydreaming or wandering around the room.
Oct. 12	David got into a fight today. He says the other children do not want to play with him. The other children feel that he is much too bossy.
Oct. 13	David frequently does not respond when called on unless I walk to his desk and speak to him directly.
Oct. 14	David could not answer questions about a story that I had read to the class.
Oct. 15	David smiled today during the Math lesson. He was explaining how to do the problem to the rest of the class.
Oct. 16	David yelled at me today and refused to come to his reading group for the reading period.

Case Study Questions

Name ________________________________ Date ______________

1. Read the brief case study carefully. Take the role of David's present teacher and describe how you might utilize the information to help David with his school problems.

Case Study Questions

Name ______________________________ Date ________________

2. What suggestions do you have concerning how you might teach David and what you might teach him.

Case Study Questions

Name ________________________________ Date ________________

3. How could you evaluate the appropriateness of your suggestions?

Case Study Questions

Name ______________________________ Date ____________

4. If you implemented your suggested program, how could you keep track of both pupil performance and teacher effectiveness?

Case Study Questions

Name ______________________________ Date ____________________

5. Indicate which information is helpful, or not helpful in planning or evaluating a program for David. Please explain why this information is either helpful or not helpful.

	Helpful	Not very helpful	Why is this helpful or not?
Cumulative record page 1 and 2			
Test scores page 2			
Semi-Annual Remarks page 3			
Parent-Teacher Conf. page 4-6			
Referral reports page 7-9			
Teacher Observational Record page 10			

APPENDIX E

Interview Schedule

Interview Schedule

1. What is your opinion of the module you saw?
   (Always ask the teacher to elaborate or explain exactly what is meant.)

   Probes: Have you tried the technique? Why or why not?

   What changes would you suggest?

2. Could teachers use the instructional strategy presented in the module, in their classrooms?

   Probes: Why do you feel that way?

   Under what conditions might such a technique work?
   What makes you think this is the case?

3. How do you try to help children in your class who have learning problems? (Remember to ask teachers to elaborate or explain themselves further)

Probes: Can you show me an example of what you have done?

Do you or would you prefer to have children helped outside of the regular classroom?

4. How do you decide when or if a child needs help?

Probes: When you say that you . . . . (observe the child, etc.) what exactly do you mean?

What else do you do?

5. Do you have groups in any of your classes? Why or why not?

Probes: How do you set them up?

How do you keep track of the groups?

Are the groups permanent for the year? If not, how do you make the decision to change groups?

6. Suppose you had a child from a special class, how would you help him/her? (elaborate).

Probes: What else have you/might you do?

7. What types of assistance would you prefer in order to help children with learning problems?

Probes: Would consultants be helpful?

What kind of consultant?

Would checklists or guidelines be of assistance to you?

How else could your school district help you?

What about University assistance?

APPENDIX F

Interpretation of Measurement Data

Both the case study and interview data were interpreted in a similar manner. A category system was developed that reflected the more prominent aspects of the decision-making model. For each category, there was a description written of exactly what types of teacher statements were considered indications of the use of that category. The descriptions of the range of statements acceptable for any one category were compiled by reviewing statements made during piloting of both instruments and a spot check of the responses of every seventh teacher in the study. These descriptions were then given to the two individuals who would be rating each set of teacher's responses. These raters then read through the descriptions and decided where they felt the descriptions lacked clarity, overlapped with other category descriptions, and presented confusion for their agreement on interpretation. For any set of descriptions that presented problems for the raters, discussion of the difficulty ensued and changes were made to eliminate those discrepancies.

For some of the categories, the decision as to whether a teacher referred to that category was simplified by the fact that the teacher had to give an explicit example. The raters were given five case study answers and five interview responses from the pilot data. Each rater checked-off those categories that s/he felt were referred to for each set of information. Their ratings were then compared with each other and with the investigator's ratings. For three of the sets of information, there was complete agreement for categories checked. For the other two sets of information, the raters disagreed with the investigator, and these differences were discussed and clarified. Subsequently, all differences were handled by accepting the decision of the majority of the people rating the information.

Finally, the two raters and the investigator evaluated the responses of all 59 teachers. A category was given a check if the rater decided that a teacher had made appropriate references to that category. This produced three sets of ratings for each teacher, and each of the three sets of ratings was evaluated. The ratings accepted as the score for the case study and the score for the interview were the ratings agreed upon by at least two of the people rating the responses. Fortunately, there was never disagreement among all three of the ratings. A teacher received only one check per category to indicate that some reference to that idea had been made. Checks did not indicate how frequently the category was referred to.

The following outline was the descriptive information used by the raters to quantify the information in the case study responses and the interview data. The case study was evaluated first for each teacher and then the interview transcript was evaluated. The rater read through the entire case study before beginning to check off categories. Then the rater read through the entire interview transcript before checking off categories. For the interview ratings, some categories could only be checked if the transcript indicated that the teacher showed an example of the category.

Code for Case Study and Interviews

Category	
1. Observation	Any statement about observation as well as "watch what student is doing," "look at samples of student's work," etc. are included in this category.
2. Pupil Records	Any statements about using past teachers' comments, former grades, and other information kept in pupil's files except use of standardized test results.
3. Standardized Tests	All teacher references to using present or former standardized test results in order to categorize students. Including "give the class the reading test from the textbook company," and "I use a reading achievement test to group."
4. Parent Information	Any indication that parents are involved, that the teacher expects parents to help with classwork at home, or that parents are seen as possible sources of the problem and in need of assistance.
5. Other Sources	This cateogry includes the desire to use consultants, school psychologists, remedial reading teachers, etc. as possible sources of information on a child's problem or a method of helping a child.
6. Profile of Student	An actual list of strengths and weaknesses, or checks of student behavior. For the case study, the teacher must have made such a list and for the interview, the teacher must have shown the interviewer
7. Hunches	Any statements about hypotheses are included in this category as well as such statements as "have some ideas about student's learning problems," "maybe child has a visual-motor problem and we should think about teaching. . . ."

8. Task Analysis	This category involves statements about breaking down a particular task into steps; on the interview data it is necessary that the teacher show how she broke down a task.
9. Learner Analysis	"I decided on where the child was and worked from there." Also includes statements made concerning motivation, reinforcement and/or changing the classroom environment. "I talk to kids and find out what they like and how they feel about themselves."
10. Diagnostic Teaching Lesson	Any statements which indicate some informal assessments might be done or that the teacher is analyzing information and making an instructional decision based on it, can be included. Also include statements such as, "try things out to see how they work." For the interview data, the teacher has to give some evidence that she tried a DTL. If she does not have it in writing, she would have to describe the lesson in detail in order to get credit.
11. Material Modification	This category includes any indications that the grade level material was adjusted for individual students or that "I use some lower grade level math books for review."
12. States Objectives and/or Goals	A list of objectives given during the interview is included; also some indication that the teacher has tried to make decisions based on objectives, "well, one student I have needs to learn the initial consonant sounds, if he does not learn the first three I teach him, then I will reconsider."
13. Charts, Progress Reports	All statements about graphs and record keeping--the interview must include evidence of this category.
14. Daily Activities	Teachers indicate that they keep track of children by checking at their daily work.

15.	Informal Testing	Specific reference to the use of criterion reference measurement and informal testing for evaluation purposes.
16.	Teacher Effectiveness	Any indications that the teacher evaluates his/her own performance are included. Does not include statements such as, "if the pupil is doing fine then the teacher is being effective."

Each rater had six sheets of paper in order to rate each teacher for both case study and interview. These sheets were then used to record the data on IBM cards.

Subject	01	02	03	04	05	06	07	08	09	10
Case Study										
1. Observation	X	X								
2. Pupil Records		X								
3. Standardized Tests	X	X								
4. Parent Information		X								
5. Outside Sources										
6. Profile of Student										
7. Hunches		X								
8. Task Analysis	X									
9. Learner Analysis										
10. Diagnostic Teaching Lesson	X	X								
11. Material Modification	X									
12. States Objectives		X								
13. Charts/Records		X								
14. Progress Reporting										
15. Informal Testing										
16. Teacher Effectiveness										
17. Total Scores	5	8								

Subject	01	02	03	04	05	06	07	08	09	10
Interview										
1. Observation		X								
2. Pupil Records	X									
3. Standardized Tests	X	X								
4. Parent Information		X								
5. Outside Sources		X								
6. Profile of Student	X	X								
7. Hunches										
8. Task Analysis										
9. Learner Analysis	X	X								
10. Diagnostic Teaching Lesson	X	X								
11. Material Modification										
12. States Objectives										
13. Charts/Records		X								
14. Progress Reporting										
15. Informal Testing	X	X								
16. Teacher Effectiveness		X								
17. Total Scores	6	10								

APPENDIX G

Chi Square Tables

Table 9

Chi Squares with One Degree of Freedom for all Categories in Respect

to the Planned Comparisons and the Post Hoc Comparison

Categories	Chi Squares			
	$\frac{\overline{X}_2 + \overline{X}_3 + \overline{X}_4}{3} - \overline{X}_1$	$\frac{\overline{X}_3 + \overline{X}_4}{2} - \overline{X}_2$	$\overline{X}_4 - \overline{X}_3$	$\overline{X}_2 - \overline{X}_1$
Case Study				
1. observation	11.3321**	4.0960*	--	1.4000
2. pupil records	.0007	.3499	2.0608	.1458
3. standardized tests	5.5841*	3.4308	.0233	9.1897**
4. parent information	.0545	.0492	1.7002	.1428
5. other sources	.4217	.1496	3.2250	.6549
6. profile of students	8.9235**	7.8318**	.0073	.5384
7. hunches	9.7878**	.3240	1.0439	3.8888
8. task analysis	6.8294**	2.9262	.1221	.9739
9. learner analysis	.0232	.1206	.0371	--
10. diagnostic teaching lesson	9.6768**	13.2723**	.0483	--
11. material modification	.0953	6.3323**	.3313	.9739
12. objectives	6.1667**	11.8522**	.0569	.5384
13. record keeping	1.7265	3.6665	.0073	.1750
14. daily activities	.0313	.9882	.5979	.6549
15. informal testing	19.0666**	17.8124**	--	1.5750
16. teacher effectiveness.	3.6420	6.3409**	.0012	--

*$p < .05$
**$p < .01$

Table 9 (cont.)

Categories	Chi Squares			
	$\frac{\overline{X}_2 + \overline{X}_3 + \overline{X}_4}{3} - \overline{X}_1$	$\frac{\overline{X}_3 + \overline{X}_4}{2} - \overline{X}_2$	$\overline{X}_4 - \overline{X}_3$	$\overline{X}_2 - \overline{X}_1$
Interview				
1. observation	8.2001**	2.9133	--	.6549
2. pupil records	4.3077*	.1047	1.9150	2.2974
3. standardized tests	.9427	.2745	.5979	1.3125
4. parent information	2.2688	4.6414*	.1221	.2121
5. other sources	3.1704	1.6548	3.3404	.1428
6. profile of students	3.6421	6.3409**	.5979	--
7. hunches	14.3747**	5.3180*	.0371	2.6198
8. task analysis	7.5341**	9.3642**	.1581	--
9. learner analysis	.2461	.7251	.0371	.1750
10. diagnostic teaching lesson	5.7019*	10.1160**	.0736	--
11. material modification	1.5088	5.8181*	.4926	--
12. objectives	4.6229*	8.1005**	.3313	--
13. record keeping	2.5695	.0718	.0012	1.3125
14. daily activities	.0313	.0196	.0073	--
15. informal testing	2.5879	.1496	.2916	2.3957
16. teacher effectiveness				

*$p < .05$
**$p < .01$

Table 10

Chi Squares with One Degree of Freedom for the Attitude Categories

Categories	Chi Squares		
	$\frac{\bar{X}_2 + \bar{X}_3 + \bar{X}_4}{3} - \bar{X}_1$	$\frac{\bar{X}_3 + \bar{X}_4}{2} - \bar{X}_2$	$\bar{X}_4 - \bar{X}_3$
Practical	11.1030***	3.6020	.3450
Clear	9.8176**	.7327	.5096
Relevant	4.7069*	.0907	.9819
Implemented	5.2984*	20.2037*	.1118

*$p < .05$
**$p < .01$
***$p < .001$

Table 11

Chi Squares with One Degree of Freedom for Opinions on Inservice Training Needs

Categories	Chi Squares		
	$\frac{\bar{X}_2 + \bar{X}_3 + \bar{X}_4}{3} - \bar{X}_1$	$\frac{\bar{X}_3 + \bar{X}_4}{2} - \bar{X}_2$	$\bar{X}_4 - \bar{X}_3$
Curriculum Consultants	2.6256	.1219	.3762
Resource Teachers	4.6330*	2.6210	2.3988
Special Ed. Consultant	6.4242**	9.1417**	6.9827*
Materials & Equipment	.1109	.8338	1.0177
Checklists & Guidelines	2.6256	5.006*	.1679
Additional Training	2.3693	1.5930	3.1801

*$p < .05$
**$p < .01$

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